University of Alberta

Evaluation of a Sexual Health Peer Education Program for Secondary School Students in Mongolia

by

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ABSTRACT

Education is imperative to preventing further increase of STIs and spread of HIV/AIDS in Mongolia. This study evaluates the peer education program (PEP) for adolescents. A two-armed methodological study was used. A quantitative comparison of knowledge, attitude, practice, and self-efficacy for schools with and without a peer education program was done using survey data and multilevel linear regression methods. The qualitative arm consisted of focus group discussions among 3 target groups; the peer educators, the students exposed to the PEP and the key informants of the program.

Students of schools with a PEP were more knowledgeable, had less traditional attitudes, greater self-efficacy, and reported more safe sex practice, yet the latter was not statistically significant. Qualitative analysis confirmed that students were more knowledgeable and provided opportunities to improve the education. We conclude the effectiveness of a sexual health peer education program and recommend a broader implementation.

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"Gratitude is not only the greatest of virtues, but the parent of all others" – Cicero

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
DMS	Directorate of Medical Services
GTZ	Deutsche Gesellschaft Fuer Technische Zusammenarbeit
HIV	Human Immunodeficiency Virus
IUD	Intrauterine Device
MOH	Ministry of Health
MOHSW	Ministry of Health and Social Welfare
NAF	National AIDS Foundation
NRCID	National Research Center for Infectious Diseases
STIs	Sexually Transmitted Infections
UNDP	United Nations Development Fund
UNFPA	United Nations Population Fund

CHAPTER 1 – INTRODUCTION

Overview of the Chapter

This chapter provides an overview of the research focus for the thesis. The overall rationale for the study, plan of thesis, description of the research team, limitations of the study and ethical considerations are provided at the conclusion of this chapter.

Introduction

In many developing countries the control of sexually transmitted infections (STIs) is a major concern with respect to promoting reproductive health. The spread of HIV/AIDS has heightened the interest in STI control.

STIs are recognized as a major public health problem worldwide because they can result in serious reproductive morbidity and mortality (Shah, 1998). Compared to intensive research directed at the problem of HIV/AIDS, relatively little attention has been directed at other STIs in developing countries (Panchaud, Singh, Feivelson, Darroch, 2000). Yet, we know that STIs are associated with risk of HIV transmission and much of the literature related to HIV prevention can inform STI prevention in general (UNAIDS, 2000).

More recently, attention has begun to focus on adolescent reproductive health in relation to STI and pregnancy prevention (Wolf, Tawfik, Bond, 2000). There is an interest in adolescents because the incidence of STIs is highest in adolescents and young adults (Nelson, Williams, Graham, 2001). Generally, sexual behavior patterns, such as

sexual partner turnover is highest in adolescents, as well as multiple concurrent sex partners (Taquette, de Velhena, de Paula, 2004). This is a segment of the population that has not been well served by reproductive health programs that have tended to focus on contraception, anti-and post-natal care, childbirth and sexually transmitted infections amongst adult populations.

In particular, this study will focus its attention on measures to prevent STIs amongst youth in Mongolia. Mongolia is a country that has undergone major transitions in social, cultural, political and economic spheres since the collapse of the Soviet Union in 1990. Accompanying these changes, Mongolia has experienced a dramatic rise in rates of STIs (UNFPA, 2002)

Mongolia and Sexual Health

Mongolia is a country with a population of 2.2 million. Roughly half of its citizens are urban and 28% of those rural still lead a nomadic life (Foggin, Farkas, Shiirev-adiya, Chinbat, 1997). It is divided into 21 provinces called aimags and the capital territory, Ulaanbaatar (Ebright, Altantseteseg, Oyungerel, 2003). Each aimag itself is further divided into rural districts called soums. Soums are in turn comprised of baghs. The capital, Ulaanbaatar is divided into 121 service districts. All together in Mongolia there are 331 soums and 1550 baghs (UNDP, 2003). Mongolia is a landlocked country between the Russian Federation and The People's Republic of China. Mongolia experienced a social change in 1989 when dependence on the former USSR ended (Aassve & Altankhuyag, 2002). The political transition to a market-orientated economy and loss of USSR subsidies has resulted in deterioration of government services (including deterioration in STI surveillance), rising unemployment, increased school

drop-outs, higher rates of alcoholism, and increased crime and prostitution (Purevdawa et al.,1997). As a consequence of this deterioration in STI control, STI rates have increased since 1993 (Kipp et. al, 2002; Garland et. al, 2001). A study by Purevdawa et al. (1997), illustrates the increase in STIs from data gathered from 1983 to 1995. Specifically, from 1993 to 1995 syphilis rose from 18 to 32 cases per 100,000 population, gonorrhea rose from 51/100,000 in 1983 to 142/100,000 in 1995 and trichomoniasis from 47/100,000 in 1983 to 155/100,000 in 1995. Another study by Schwebke et al. (1998) conducted in Ulaanbaatar among 260 patients attending an STI clinic found that the prevalence of gonorrhea, chlamydia, and syphilis, were at 31.1%, 8.1%, 8.6%, respectively for males and 10.3%, 9.9%, 6.0% for females. Trichomoniasis was seen in 67% of females.

As a result of the instability caused by the political transition in Mongolia, there is little published and unpublished information on reproductive health care delivery and health services (Kipp et al., 2002). Before the fall of the Soviet Union, past efforts oriented to resolving the problem of STIs and reproductive health in adolescents were not extensive. It was not until 1997 that the need for sexual health education was recognized by the Government of Mongolia. The government launched a reproductive health education program that included adolescents (UNFPA & MOHSW, 1999). This program is an illustration of how Mongolia is beginning to target sexual health among adolescents. A sexual health peer education program that began in 2000 in Mongolia is a specific example of how sexual health programs are reaching out to adolescents. This program has since expanded and thus an evaluation is necessary in order to assess its' progress. Thus, the purpose of the study is to evaluate the sexual health peer education program for secondary school students in Mongolia.

Overall Rationale for the Study

As mentioned, there is little published information regarding sexual health amongst adolescents in Mongolia (Kipp et al.2002; Roberts, Oyun, Batnasan, Laing, 2005). Since most of the research stays within the grey literature of international organizations, it was necessary to investigate the current state of the sexual health peer education program in Mongolia and to find out what impact it was having on adolescent sexual health knowledge, attitudes, self-efficacy and practices. Also, further understanding in this area could assist in the implementation or improvement of sexual health peer education programs in Mongolia and other developing countries.

In 2001, Die Deutsche Gesellschaft fuer Technische Zusammenerbeit (GTZ) introduced a peer education program to 48 schools in Ulaanbaatar (W. Wagner, personal communication, September 6, 2004). The program was based on a pilot project conducted by Roberts et al. (2005). The pilot program utilized focus group methods to train peer educators to deliver sexual health education in two schools (20 and 50) in Ulaanbaatar. The program has continued for three years with no evaluation. Thus, the purpose of the study is determine how effective the peer education program has been in developing positive knowledge, attitudes and safe sex practices in adolescents in schools that have had the peer education program for 3 years, in comparison to adolescents from schools without the program. The underlying purpose is to determine what changes could be made to improve the peer education program in Mongolia.

Plan of the Thesis

The thesis is presented in a mixed format as outlined by the Faculty of Graduate Studies and Research along with the Department of Medical Sciences-Public Health Sciences, University of Alberta. The second chapter is a literature review of the research topic and it concludes with the two aims of the study and the research questions addressed in the thesis. Chapter III is the research paper derived from the quantitative arm of the study. Chapter IV presents the results of the qualitative evaluation. The final chapter provides the overall conclusion, recommendations for practice and implementation of the peer education program and future directions for research and utilization of the research findings. Three appendices follow the five main chapters. Appendix A presents a detailed outline of the quantitative and qualitative research methodology, Appendix B provides the research study instruments and Appendix C includes the consent forms and information letters.

The Research Team

The team for this study follows from an on-going collaboration between the University of Alberta, Directorate Medical Services (DMS) and the Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ). Since 1997, the University of Alberta has had a continuing spectrum of relationships with DMS. In 2004, Drs. L.Laing, W.Kipp, and N. Krogman were awarded a CIHR grant for research regarding the determinants of adolescent reproductive health in rural Mongolia. Arrangements for this

study were begun by Dr. L.Laing during a visit to Mongolia in September 2003. Dr. W. Wagner, Chief Technical Advisor of the Joint-German Project "Improving Reproductive Health" (GTZ) had expressed great interest in conducting an evaluation study of the peer education program in Mongolia. He indicated the availability of KAP survey instruments and a willingness to provide on the ground support for conducting it. In Mongolia, the researcher was supervised jointly by W. Wagner (GTZ) and D. Jargalsaikhan (DMS). GTZ has experience in conducting KAP surveys. Recent KAP surveys related to sexual health include a 1999 Baseline Survey (UNFPA et al, 1999) and a survey report on peer education training (NHCD & GTZ, 2002).

The research study is a two-armed methodological study, consisting of both quantitative and qualitative components (Appendix A). The research instrument of the quantitative arm of the study is a knowledge, attitude, practice (KAP) survey (Appendix B). The qualitative arm consists of focus group discussions and semi-structured interviews. The research team for the survey distribution included members from both DMS and GTZ. Since the researcher did not speak Mongolian, members from DMS helped the researcher inform both Mongolian Ministries (health and education) of the task at hand. Both DMS and GTZ aided in contacting schools and making all of the necessary arrangements for the distribution of the questionnaire. As well, DMS members always accompanied the researcher to the respective sites and helped translate all explanations to the school staff and to the students.

The research team for the focus group interviews included the researcher, moderator, transcriber and observer. The team for the semi-structured interviews included the researcher and a translator. All research team members were young (less

than 30 years of age), knowledgeable about sexual health and had experience conducting focus groups in Mongolia. A training session was held for the team and they each received interview guides (Appendix B).

Ethical Considerations

Ethical approval for the research was granted by the University of Alberta, Health Research Ethics Board, Panel B in August 2004. The nature of the intended evaluation project was also sent to GTZ, to have on-site approval. Before conducting the KAP survey, principals from each school, the Mongolia Ministry of Education and DMS (health promotion sub-department of the Mongolian Ministry of Health) were informed; their approval was necessary in order to continue through with the data collection. The students were chosen through randomization and the KAP survey was administered after school, out of class time. Therefore, coercion was avoided by giving students the option of participating after their scheduled class time. During the KAP questionnaire administration they were informed that their names were not being recorded, that they could withdraw at any time and that they did not have to answer a question if they felt uncomfortable doing so. This assured anonymity of the respondents. Also, only the researcher and the DMS health professional were present during and after the KAP survey distribution, in order to avoid any discomfort among the students.

In the qualitative methodology, the students participating in each of the focus groups were informed that all precautions would be taken to ensure confidentiality, but that due to the possibility of students within the group telling others what they had heard

after leaving the group, confidentiality could not be guaranteed. We explained to them that being a part of a focus group study, meant adherence to the confidentiality rules and that it would be deemed unethical to disclose their fellow peers' information. Before conducting the focus groups, the students and key informants were asked to sign consent forms. They were also told that their names were not being recorded and that their answers would remain strictly between the research team and their fellow focus group members. The researcher made efforts to create a comfortable and respectful atmosphere and selected research partners who were sensitive to the topic of sexual health. Students participating in the semi-structured interviews were also asked to sign consent forms and informed of the above issues (Appendix C).

Limitations

The primary limitation was the use of the validated KAP survey instrument. The survey was developed and used in Mongolia in 2002 (NCHD & GTZ, 2002). The survey instrument had been tested for its validity, so it was felt that there was value in being able to compare the data from this study to the results found in 2002. However, the survey had a complicated question structure and some of the questions were somewhat sub-optimally translated into English. This limitation was addressed by eliminating from the analysis questions that were ambiguous. Information may have been lost because of this procedure. In addition, the self-efficacy questions borrowed from an already validated survey instrument had not been used previously in the Mongolian context (Cecil & Pinkerton, 1998).

Another limitation related in part to the utilization of a KAP survey instrument was the issue of validity of using a self-administered questionnaire to collect sensitive information about sexual subject matter. There is disagreement on whether the best method to collect sensitive data is through in-depth interviews or through questionnaires (Plummer, M). The difficulty is that direct observation or public records are almost impossible in the context of private sexual behavior. Sexual behavior data obtained through questionnaires represents reported, not observed behavior. "Validity is improved when the research variables to be incorporated in the questionnaire or in the interview guide are tested during in-depth interviews in which the meaning of the language used and the accuracy of recall are checked" (FHI, 2001; p. 167). The limitation was addressed by trying to incorporate the data collected from the focus group discussion and using it to assist in clarifying or explaining the meaning of statistical results from the KAP survey.

As with all efforts to determine the effect of a health intervention on a target population, it is impossible to determine the possible effect of broader influences on the outcome variables. There is no way to be sure that the differences measured in knowledge, attitudes and self-efficacy were solely attributable to the influence of the peer education program.

Clearly the researcher was hampered by a language barrier. The researcher does not speak Mongolian and thus, information may have been lost through translation. Care was taken to ensure that the translators and health professionals working alongside the researcher completely understood the research study and reasons for accurate translation. It was particularly important for the qualitative arm of the study. Since the students do

not speak English, and as Roberts (2001) noted, excellent translation skills were scarce in Mongolia making transcripts difficult to comprehend, it was therefore necessary to have validation of the transcripts by a second translator. The first translator from the focus group study also served as the transcriber. She was a Mongolian female that had lived in Los Angeles, California for 5 years while completing her master's degree in human sexuality and marriage. She was fluent both in English and Mongolian and so the researcher made great strides to inform her of the focus group content and procedures; so that she could explain it to the rest of the Mongolian focus group research team. The final transcripts were then validated by a second translator. She was a Mongolian DMS staff member that had lived in Albany, New York while working on her master's degree in public health and lived in Philadelphia, Pennsylvania during her PhD program.

A major limitation of the focus group data collection was the skill level of the focus group moderator. The moderator was a member of the research team and had been assigned to the work by DMS. She had experience as a focus group moderator in Mongolia, but it became apparent during the data collection that she was not adept at probing participants' comments, or encouraging full discussion of the topics. This severely limited the amount of information obtained from the focus groups. It was originally planned that the focus group data would penetrate more deeply than the questionnaire survey. It was clear from the translated transcripts that questions and topics were only superficially addressed. However, there were some information obtained that may be useful for program administrators to pursue in more in-depth.

REFERENCES

Aassve, A., Altankhuyag, G. (2002). Changing Patterns of Mongolian Fertility at a Time of Social and Economic Transition. *Studies in Family Planning*. 33, 165-172.

Cecil, H & Pinkerton, S.D (1998). Reliability and validity of a self-efficacy instrument for protective sexual behaviors. *Journal of American College Health* 47, 113-121.

Ebright, J.R., Altantseteseg, T., Oyungerel, R. (2003). Emerging Infectious Diseases in Mongolia. *J Emerging Infectious Diseases* 9, 1509-1515.

Foggin, P.M., Farkas, O., Shiirev-adiya, S., & Chinbat, B. (1997). Health status and risk factors of seminomadic pastoralists in Mongolia: A Geographical Approach. *Soc. Sci. Med.* 44, 1623-1647.

Family Health International & USAID. (2001). Ed. Rehle, T., Saidel, T., Mills, S., Magnani, R. Evaluating Programs for HIV/AIDS Prevention and Care in Developing Countries. A Handbook for Program Managers and Decision Makers.

Garland, S.M, Tabrizi, S.N., Chen, S., Byambaa, C., & Davaajav, K. (2001).Prevalence of sexually transmitted infections (Neisseria gonorrhoeae, Chlamydia trachomatis, Trichomonas vaginalis and human papillomavirus) in female attendees of a sexually transmitted diseases clinic in Ulaanbaatar, Mongolia. *Infect Dis Obstet Gynecol*, 9, 143-146.

Kipp, W., Sodnompil, T., Tuya, M., Erdenchimeg, E., Nymadawa, P. (2002). Reproductive health in Mongolia: results from three provinces and one urban district. *Tropical doctor*, 32, 159-162.

NCHD & GTZ (2002). The Survey Report on Peer Education Training. Ulaanbaatar, Mongolia.

Nelson K.E, Williams C.M, Graham, N.M.H (2001). N.M.H. *Infections Disease Epidemiology: Theory and Practice*. Maryland: Aspen Publication. 611-652.

Panchaud C, Singh S, Feivelson D, Darroch J.E (2000). Sexually Transmitted Diseases Among Adolescents in Developing Countries. *Family Planning Perspectives* 32, 24-32.

Plummer, M., Rosa, D., Wight, D., Changalucha, J., Mshana, G., Wamoyi, J., Todd, J., Anemona, A., Mosha, F., Obasi., A., Hayes, R. (2004). "A bit more truthful": the validity of adolescent sexual behaviour data collected in rural northern Tanzania using five methods. *Sexually Transmitted Infections* 80, 49-56.

Purevdawa, E., Moon, T.D., Baigalmaa, C., Davaajav, K., Smith, M.L. & Vermund, S.H. (1997). Rise in sexually transmitted diseases during democratization and economic crisis in Mongolia. *International Journal of STD & AIDS*, 8. 398-401.

Roberts, A. (2001). Unfinished MSc. *A description of the socio-cultural context of sexual health in Ulaanbaatar, Mongolia for a school-based peer education program.* Edmonton, Alberta.

Roberts, A.B, C. Oyun, E. Batnasan, L.Laing (2005). Exploring the social and cultural context of sexual health for young people in Mongolia: implications for health promotion. *Social Science and Medicine* 60, 1487-1498.

Schwebke J.R., Aira, T., Jordan, N., Jolly, P.E., Vermund, S.H. (1998). Sexually transmitted diseases in Ulaanbaatar, Mongolia. *Int J STD AIDS* 9, 354-358.

Shah, C.P (1998). *Public Health and Preventative Medicine in Canada*. 4th ed. Toronto: University of Toronto Press. 87-97.

Taquette S.R, de Vilhena M, de Paula M.C. (2004). Seuxally Transmitted Diseases and Gender: a cross-sectional study with adolescents in Rio De Janerio. *Cad. Saude PUblica 20*, 282-290.

UNAIDS. (2000). *Report on the global HIV/AIDS epidemic*. Geneva, Switzerland

UNDP. (2003). *Human Development Report, Urban-Rural Disparities in Mongolia.* Ulaanbaatar, Mongolia.

UNFPA, GTZ RH project, Population Teaching and Research Center, Margaret Sanger Center International, Ministry of Science, Technology, Education and Culture, Ministry of Health, (1999) *Knowledge, Attitudes and Practices Related to Reproductive Health and Sexuality Students Mongolia: 1999 Baseline Survey*. Ulaanbaatar, Mongolia.

UNFPA, MOHSW. (1999). *Report on Regulation and Management of Contraceptives and Essential Reproductive Health Drugs in Mongolia*. Ulaanbaatar, Mongolia.

UNFPA.(2002). *Third Programme of Assistance to the Government of Mongolia.* Ulaanbaatar, Mongolia.

Wolf R.C, Tawfik L.A, Bond K.C. (2000). Peer Promotion Programs and Social Networks in Ghana: Methods for Monitoring and Evaluating AIDS prevention and reproductive health programs among adolescents and young adults. *Journal of Health Communications* 5, 61-80.

CHAPTER 2 - LITERATURE REVIEW

Overview of the Chapter

The literature review in this chapter is divided into three main sections. The first section provides an overview of STIs and HIV/AIDS globally and then focuses on sexual health in the adolescent population. The second section concentrates on Mongolia and sexual health, specifically addressing the current situation of adolescents and STIs. The third section of this chapter introduces peer education programs, as well as explaining its conceptual framework. It concludes by describing the sexual health peer education program in Mongolia. The study's research aims and specific research questions follow the three sections.

Having stated that the purpose of this study is to determine the effectiveness of a sexual health peer education program for secondary school students in Mongolia, the literature was reviewed in relation to adolescent sexual health in Mongolia and other developing countries.

The literature review was conducted by searching EBSCO host and Medline databases. Key words used for the search included, Sexually Transmitted Diseases/Infections, HIV/AIDS, Adolescent, Mongolia, Sexual Health Interventions/Education, Peer education and Evaluations. Other websites utilized were WHO, UN-Mongolia, UNAIDS and Advocates for Youth.

Sexually Transmitted Infections Worldwide

Sexually transmitted infections (STIs), including Acquired Immunodeficiency Syndrome (AIDS) is a concern that affects both men and women globally (Shain et al., 1999). The HIV/AIDS pandemic killed more than three million people and five million more acquired Human Immunodeficiency Virus (HIV) in 2003 (AIDS Vaccine Weekly, 2003). Although HIV/AIDS may be most predominate in Sub-Sahara Africa, one cannot ignore the fact that the virus is now also becoming a major concern in other developing countries, such as China, Indonesia and Russia (AIDS Vaccine Weekly, 2003). The consequent rising of HIV/AIDS in the two countries bordering Mongolia, combined with Mongolia's rising STI rates, has resulted in a vulnerable situation for Mongolian citizens, especially the country's adolescents.

There is now overwhelming evidence that in countries with high prevalence of both HIV and STDs, the concomitant improved treatment of symptomatic STDs can reduce the incidence of HIV (Okonofua et al., 2003). There is a greater facilitation of HIV transmission when an individual has an already existing STI (UNAIDS, 2000). Because adolescents are at risk of acquiring STIs and unintended pregnancies this study focuses on this group.

Adolescent Sexuality and Sexually Transmitted Infections (STIs)

As adolescents grow and mature, one of the many challenges they will face concerns their ability to maintain healthy sexual behavior. STIs and HIV/AIDS have become a disease of the young. It has been found that the global incidence of STIs is

highest in adolescents and in young adults (Nelson et al., 2001). Of the 1.2 billion adolescents in the world (APHA, 2003/2004), UNAIDS estimated that in 2004, 11.8 million were living with HIV/AIDS (Stephenson & Obasi, 2004). 8.6 million of those HIV infected adolescents live in Sub-Sahara Africa and 1.1 million in South Asia (AIDS Weekly, 2003). Among those ages 15-24, The American Public Health Association (2003) reported that half of all new HIV infections and at least a third of more than 333 million new cases of curable sexually transmitted diseases occur each year. In Mongolia, close to one half of the STIs occur in people who are less than 25 years of age (New Horizons, 2003). This worldwide problem has significant repercussions because a majority of the young people, especially women (girls) do not even know that they are infected (UNAIDS, 2003). Given the spread of the infection, attention has become focused on the need for prevention.

The relationship between adolescent behavior and the high STI and HIV/AIDS incidence in adolescents has been studied (Burstein et al., 2003; Rotheram-Borus et al, 2000). For the majority of people, sexual activity begins in adolescence (UNICEF, 2000) because during adolescence sexual feelings change and intensify (Kirby, 1994). UNICEF(2000), found that adolescents who start having sexual intercourse early are more at risk of disease because they are likely to have sex with high risk partners, or multiple partners, and they are less likely to use condoms. Also, Taquette et al., (2004) found that in general, adolescents may lack the appropriate knowledge, have misconceptions of how STIs and HIV/AIDS are spread, lack skills to negotiate abstinence or condom use, and have a misperception of their risk level.

Discussion of sexual behavior can be a taboo in many countries, thus education for prevention is not readily available (AIDS Weekly, 2003). In Somalia for instance, only 26% of adolescent girls had heard of AIDS and only 1% knew how to protect themselves (AIDS weekly, 2003). In a survey by New Horizons (2003), it was found that in Mongolia reproductive health information for adolescents was not readily accessible. Sixty-four percent of the respondents did not know where they could get information on STIs and HIV/AIDS. Sexual education is thus integral to the health of adolescents and should include methods for prevention of STIs, HIV/AIDS and unintended pregnancies (Stephenson & Obasi, 2003).

The previous section of this literature review provided a description of the current state of STIs and HIV globally and adolescent sexuality and STIs. The next section describes Mongolia and sexual health, in particular Mongolian adolescents and sexual health.

Sexual Health in Mongolia

Mongolia's economic transition from a centrally planned socialist system to a free market economy in the 1990's reflects a change in health care policy and delivery before and after that transition (Manaseki, 1993). The government's strong pro-natalist policies from 1957 to 1976 influenced reproductive health choices (Gerdts, 2002) by restricting access to contraceptives and by providing incentives to fertility (Patel & Amarsanaa, 2000). Formal financial and social awards were given to females for child

bearing (Gerdts, 2002). It was not until the 1970's that limited use of IUDs became available and then in 1989 oral contraceptives (UNFPA & AVSC, 2000). In 1997, IUDs were the most common type of contraceptive for women, followed by condoms and oral contraceptives (Japan International Cooperation Agency, 2002). Abortion became legal in Mongolia in the late 1980s (Patel & Amarsanaa, 2000). The National Population Policy of 1996, states that "abortion is not a method of family planning, but should be provided according to lawful criteria and in safe conditions" (Patel & Amarsanaa, 2000). Thus, since the political transition of 1990, the government has begun wider provisions of contraceptive information and services, including services for adolescents.

Even though there is now a wider range of services available for sexual health resources, in recent years there has been an increasing rate of sexually transmitted infections in Mongolia. Mongolia has a number of risk factors that predispose its citizens to STI or HIV infection (UNDP, 2003). It has a young population, an increased number of sex workers, and a rise in migration and population movements between countries by people searching for work, study or trade (Japan International Cooperation Agency, 2002). It also has a steady rise in intravenous drug users. Geographical location can also be considered a risk factor. Russia, one of Mongolia's neighboring countries has increasing STI rates. In 1990, 95 HIV-infected patients were reported in Russia, whereas in November of 2000 the figure had risen to 62, 120 patients (Netersov, et al, 2001). Another country that borders Mongolia is China. The HIV/AIDS epidemic is increasing dramatically in China as well (UNAIDS, 2003). The reported number of HIV/AIDS cases in China in 2002 increased by 44% compared with 2001 to an overall estimate of 840,000 people living with HIV/AIDS (UNAIDS, 2003). Since Mongolia is a

landlocked country between Russia and China and the prevalence of HIV in these countries is increasing, it is a concern that the HIV pandemic will also affect Mongolia.

As of 2001, Mongolia had only two confirmed positive tests for HIV (Ebright et al., 2003). However, there is reason to doubt the existence of only two HIV positive people. Since 1987 only 20,000 patients have been screened for HIV infection at the National Research Center for Infectious Diseases (NRCID) (Ebright et al., 2003). Surveillance methods are also questionable in Mongolia. There is a lack of availability of reliable diagnostic tests for STIs and HIV (UNFPA & MOH, 2000). "In general, there is little knowledge of STDs within the community, there is a shortage of laboratory diagnostic tests, basic supplies, effective antibodies and irregular supply of condoms" (UNFPA & AVSC, 2000). In light of the less than optimal knowledge of STIs in Mongolia in general, adolescents in Mongolia are increasingly at risk of acquiring STIs.

Mongolian Adolescents and Sexual Health

Adolescents 10-19 years of age comprise 25% of the population in Mongolia (National Statistics Office, 1998). There is evidence that sexual activity among the adolescents in Mongolia has been slowly changing within the last decades (Gerdts, 2002). In 1995, an adolescent reproductive health survey found that 26% of teenagers 17-18 years old, had engaged in sexual intercourse and by 1999, this figure rose to 35% (Reilly et al., 1999). Accompanying these changes in sexual activity, Mongolia has made strides in promoting the healthy development of adolescents. In 1997, the Government of Mongolia approved the National Reproductive Health Programme that set the goal to

improve the availability and the quality of reproductive health services at soum, bagh and aimag levels (Sumberzul & Oyunbileg, 2002). Adolescent Cabinets (AC) were established at the Maternal Child Health (MCH) Research Center and aimag centers. These established cabinets provided no actual treatment services such as medical care or counseling (MOH, WHO, NCHD, 2001). They served only girls, monitoring their physical and sexual development through screening (Japan International Cooperation Agency, 2002). Specifically, the facilities provided by the cabinets were not adolescent friendly, because they lacked privacy/confidentiality and generally did not provide counseling about STIs or family planning services (MOH, WHO, NCHD, 2001).

Since the implementation of the Adolescent Cabinets, the Mongolian Ministry of Health (MOH) approved an assessment in 2002 in order to evaluate their effectiveness (MOH & WHO, 2002). It found that school doctors/nurses did not have the required competencies to provide effective health information and education and that the adolescents did not see the school doctors/nurses as a useful source of information and/or could not keep confidentiality. According to their job description school doctors in Mongolia are "responsible for school sanitation and hygiene in addition to their central task of providing health screening" (MOH, WHO, NCHD, 2001; p.V). They were not familiar with sexual health education content. Since the initial assessment, the Mongolian MOH, WHO and UNFPA has begun to train school doctors to have the necessary competencies to provide effective sexual health education, as well as developing written policies and procedures on confidentiality and client rights (MOH, WHO, UNFPA, 2004). Through a project intervention it found that by training the school health staff, students have begun to feel more comfortable visiting the school doctors (MOH, WHO,

UNFPA, 2004). Even though school doctors/nurses are beginning to get training, a greater emphasis on sexual education prevention is needed.

Sexual activity among adolescents becomes a concern, particularly if they are not using methods for prevention of STIs and unintended pregnancies. A survey conducted in 1999 by the MOH, UNFPA and GTZ, of 11-18 year old adolescents in Ulaanbaatar, found that among those who had engaged in sexual intercourse, only 36% used a condom the first time they had sex (Gerdts, 2002). A 1999 baseline survey that aimed to determine the knowledge, attitudes and practices related to reproductive health and sexuality among secondary schools students in Ulaanbaatar and four aimag centers in Mongolia, showed that overall respondents had a very low level of knowledge about all aspects of reproductive health and sexuality (UNFPA, et al, 1999). The mean score out of 30 was 6 and the range was from 0 to 19. Pandey (2002) found that knowledge of all contraceptive methods was uniformly low in females aged 15-19 years. In another 1999 health survey (MOHSW & UNFPA, 1999) it was found that 87% of adolescents had insufficient knowledge about reproductive health and sexuality. The document was unclear as to what constitutes insufficient knowledge. The need for effective sexual education in Mongolia is emphasized by a study that found that between 48-52% of STIs occur among people younger than 25 years of age (Purevdawa, et al, 1997). Despite the evidence presented (a lack of knowledge regarding reproductive health) there is a uniformly positive attitude towards sexual health education among adolescents. Ninety-two percent of youth respondents in a baseline survey (UNFPA et al., 1999) indicated that they wanted more information about reproductive health and sexuality. This is especially important because adolescents are beginning to get sexual information through

the general media as opposed to accurate literature resources (Gerdts, 2002). Adolescents surveyed in 1999 aged 13-16 said that they received most of their information regarding reproductive health and sexuality from the television (UNFPA et al., 1999). The type of television watched by the respondents was not mentioned in the survey. In fact, one reason suggested for the rise in sexual activity is access to international media. For instance, "before 1990, sexuality was hardly discussed and even a film kiss (only Russian or Mongolian film industry existed) was considered risqué" (Gerdts, 2002; p.8). It can be inferred that information through effective preventive education methods is needed.

Due to the association between STIs and HIV, poor surveillance for HIV in Mongolia, and the fact that STI rates are increasing, it becomes the aim of this study to assess the effectiveness of a peer led sexual health education program in schools in Mongolia. The peer led school based program will be discussed in relation to selected other intervention methods targeted at youth.

The third section of this literature review provides an overview of reproductive health interventions, specifically peer education programs. It describes the conceptual framework behind peer educators and also gives a detailed description of the peer education program in Mongolia.

Peer Education Programs

It has been estimated that basic prevention services could help in preventing millions of new HIV infections that have been predicted to occur between 2003 and 2010 (McCarthy, 2003). These prevention strategies include programs that control STDs, provide voluntary counseling and testing for HIV, promote harm-reduction strategies for injection drug users, reduce mother-child HIV and encourage those at risk to delay the initiation of sexual activity, reduce the number of sexual partners they have and use condoms during sexual intercourse (McCarthy, 2003).

Interventions that focus on the adolescent target group will be discussed because "STDs rank among the most important health issues for adolescents and young adults worldwide "(Gokengin et al., 2003; p. 258). Currently the most common adolescent HIV prevention programs include social marketing campaigns of condoms, school-linked health clinics, and school-based education initiatives (Rotheram-Borus, Okeeke, Kracker, Foo, 2000). Social marketing is a method of using mass marketing techniques to disseminate information that is considered important for the general public's awareness (U.S. Department of Education, 2003). National Social marketing campaigns aimed at sexual health had been mounted and evaluated in 16 countries by the year 2000 (Rotheram-Borus et al, 2000). The most successful national program was in Switzerland, where condom use increased significantly and the number of HIV-infected persons decreased, especially among youth (Dubois-Arber, Jeannin, Konings, Paccaud, 1997). However, difficulties surrounding social marketing campaigns exist that are costly and

have a narrow focus in their prevention message, focusing only on condom use (Rotheram-Borus et al, 2000).

A school-linked health clinic is a clinical service that has the potential to be a good resource for STI and HIV/AIDS prevention when it is readily available for student access (Rotheram-Borus et al, 2000). The clinics are health centers on or off-campus (the latter in close proximity to the school) that can serve either one school's students' or students from several different schools (Rotheram-Borus et al, 2000). In order for the clinics to be effective in providing preventive information, the services offered by the health personnel need to be readily available and the adolescents should also feel comfortable that their confidentiality is preserved.

This study focused primarily on school-based interventions. School-based sexual health prevention programs can be an "extremely important component of efforts aimed at reaching adolescents" (Agha, 2002; p.270) because effective sexual health education incorporates two areas (McKay, 2000):

1. An effective program will focus on reducing specific sexual-risk taking behaviors, provide relevant information directly, give students opportunities to develop motivation and personal insight to use the information and help develop behavioral skills to carry out health promotion behaviors.
2. Provide the information, motivation and behavioral skills to help adolescents delay their first sexual intercourse and to use contraceptives/condoms properly and consistently if and when they experience sexual intercourse.

Interventions that incorporate young peoples' beliefs about their friends' behavior have been shown to have a strong association with an adolescents' own behavior (Millburn, 1995). Specifically, the growing popularity of participatory peer education as STI/HIV-prevention strategies is attributable to the idea that when it is performed in the appropriate social context it can effect the change of behavior at the individual and group level. This is done by attempting to modify a person's knowledge, attitudes, beliefs or behaviors (Campbell & MacPhail, 2002). Therefore, peer education is a popular school-based intervention that aims to promote young people's sexual health (Stephenson & Obasi, 2004). Mongolia has decided to invest in peer education and thus this study specifically addresses peer education as an intervention method for sexual risk prevention education.

Peer education is an intervention that involves training and supporting members of a given group to effect change among members of the same group by attempting to change the knowledge, attitudes and behaviors of that group (Horizons Population Council, 1999). It is seen as useful for advocating responsible adolescent sexual health behavior, because it fosters a comfortable environment for discussion among peers. The basic rationale for using peer education among youths is that the program gives strong consideration to specific social and cultural environments, promotes responsible social norms and support for positive attitudes and behaviors, and lastly increases the likelihood that adolescents will become involved and participate in the further development of the program (Fee & Youseff, 1993).

Since its early spread in the early 1990's, peer education is currently considered to be one of the most effective intervention methods among youth (Hope, 2003; Wolf et

al., 2000). However, with that said, few evaluations that focus on impact have been conducted (Wolf, et al, 2000; Campbell & MacPhail, 2002; Hope, 2003; Harden, Oakley, Oliver, 2001). Of the evaluations performed, most have remained within the 'grey literature' of unpublished reports of agencies and organizations (Milburn & Wilson, 2000). "Rigorous evaluations are needed to assess whether adolescent interventions have an effect on young people's risk related perceptions and behaviors" (Agha, 2002b; p.67). Most of the evaluations performed have focused primarily on quantitative methods and thus missed important behavioral indicators of sexual health that could be further explored by incorporating qualitative methodology (Wolf et al, 2000). When sexual behavior is examined, the standard practice is to use knowledge, attitude and practice (KAP) surveys to "measure prevalence levels at a specific point in time. To link changes in KAP indicators to intervention efforts, data must be collected from both areas where the program has been implemented (experimental) and similar areas where program efforts have not been implemented (control)" (Wolf et al., 2000; p. 63). This approach was used in this study.

Conceptual Framework for Peer Educators

The rationale to use peer education programs for promoting responsible sexual behavior is Bandura's social learning theory (Bandura, 1982). In this model, self-efficacy is thought to be shaped by past and present behavior, as well as by the social environment via observation of behaviors in others and through verbal support and persuasion. Self-efficacy beliefs are thought to be domain specific cognitive structures

linked to health promoting behaviors and to general well being. Social learning theory is grounded in the belief that human behavior is determined by a three-way relationship between cognitive factors, environmental influences and behavior (Bandura, 1977). All three factors play a role in the application of a peer education program in a societal context. The central purpose or end goal of peer education initiatives is to influence or modify young people's behavior, as behavioral change is influenced by factors related to the individual (pre-existing knowledge, attitudes and beliefs), the social environment (e.g. group and cultural norms, peer influence, family influence) and cognitive factors (e.g. self-esteem and self-efficacy) (NCETA, 2002).

(Roberts, 2001) showed that the social norms of Mongolian society exist in a triangular relationship; the knowledge and attitudes of adolescents, influence their behavioral practices. Within the framework of reciprocal determinism in social learning theory, the study concluded that the traditional patriarchal environment of Mongolian culture influenced aspects of sexual health such as; embarrassment, cross-generation communication, lack of knowledge about sexual health, concepts of promiscuity, gender roles and peer norms. Environmental factors such as inadequate education or social embarrassment influenced personal factors, such as a lack of knowledge and attitude towards the perception of condoms, thus influencing behavioral practices such as lack of condom use.

In the application of social learning theory (within a peer education program), the peers are encouraged to: observe and imitate the behaviors of their peer educators and of others; see positive behaviors modeled and practiced; increase their own capability and confidence to implement new skills; gain positive attitudes about implementing new

skills; and experience support from their environment in order to use their new skills (ReCAPP, 2002). People can therefore learn by observing the behavior of others and the outcomes of those behaviors. The observer is likewise, reinforced by a third person. This third person, in the peer education program example, is the peer educator.

Self-efficacy, a component of social learning theory (Bandura, 1977) refers to the ability an individual has to shape the self; the belief that one can influence one's own thoughts and behaviors. It focuses on "individual's convictions that they can exercise control over their motivations, behaviors and social environments" (Cecil & Pinkerton, 1998) as well as the perception that one can accomplish what is desired or expected (Scales, 2001). This concept has been readily incorporated as a method to examine sexual health decisions and thus evaluate sexual education interventions (Cecil & Pinkerton, 1998; Kasen, Vaughan, Walter, 1993; Dunn et al, 1998; Scales, 2001). Self-efficacy questions are important because they will play a role in examining the effectiveness of a peer education program as evidenced by whether an adolescent practices protective sexual behavior (Cecil & Pinkerton, 1998). When self-efficacy is measured in sexual health KAP surveys, it usually measures just one behavior, condom use (Dunn et al, 1998).

The Peer Education Program in Mongolia

Early Development

The adolescent peer education program in Mongolia was first piloted in two schools (Schools 20 and 58) in Ulaanbaatar by the University of Alberta in collaboration

with the Directorate of Medical Services (DMS) in the fall of 2001 (Roberts et al, 2005). Qualitative methodology through multiple category focus group design was utilized with health staff, health teachers and students (15-17 years of age) as the primary stakeholders. Altogether, six initial consultative focus groups were held to ground research questions, to train peer educators and after one month two more evaluation focus groups were held. Through this initial research program it was found that a lack of sexual health knowledge existed and the peer education program was deemed appropriate for schools 20 and 58. The peer education program has since been revised and expanded however still focusing on adolescent sexual health.

Die Deutsche Gesellschaft fuer Technische Zusammenarbeit (GTZ) and the Directorate of Medical Services (DMS) have been responsible for the expansion of the pilot peer education program in Mongolia. GTZ works as an international cooperation, organized as a private company and owned by the German Federal Government. It operates worldwide to help improve sustainable development through a public benefit basis. In 2005, GTZ was implementing approximately 2,700 development projects and programs in over 130 countries; 12 projects are in Mongolia (online website: www.gtz.de/unternehmen/1698.htm). GTZ has had a permanent office in Mongolia since 1999; however its reproductive health project has been active since 1998. DMS is the health promotion unit of the Mongolian Ministry of Health. The GTZ has funded the development and implementation of the sexual health peer education project and DMS health professionals have served as the peer educator trainers and implementing staff.

The GTZ and The Mongolian Cooperative Network (funded by the Mongolian government) began a pilot project in 1998, entitled "Promotion of Organized Rural Self

Help" (online website: www2.gtz.de/sme-portals/English/portal08.htm) to aid the income disparities observed between the rural communities and the metropolitan areas of Mongolia. The project has since been established in four provinces of Mongolia; Sukhbaatar Aimag, Selenge Aimag, Tuv Aimag and South Gobi Aimag. After the success of the pilot projects in schools 20 and 58, GTZ decided to invest in promoting and establishing sexual health peer education programs in secondary schools for Mongolian adolescents. The schools that have been chosen to be candidates for the implementation of the peer education program fall within the GTZ rural project targeted provinces. Having established projects in these rural areas, it is easier for GTZ to also select potential schools, as these areas are easier to access and a supportive network is already in place. In 2002, there were 48 schools in Mongolia that had the peer education program. The areas of the country where the program currently exists are; Ulaanbaatar (Khanuul district, Sukhabaatar district, Nalaikh district), Sukhbaatar Aimag, Selenge Aimag, Tuv Aimag and South Gobi Aimag; which coincide with the target GTZ rural implementing areas of Mongolia.

The process for the selection of the peer educators is as follows: the GTZ reproductive health unit and DMS establish communication with the school nurses/doctors, at each respective school in the soums or central aimags. If the school nurses/doctors agree to incorporate a sexual health peer education program at their school (all have since agreed) then together with the teachers they begin to choose which students would be most likely to be effective peer educators (the school directors are not approached). Local GTZ coordinators meet with biology and chemistry teachers to discuss which students are the most: "open, intelligent (grades), expressive,

communicative, honorable and friendly" (Tsevelmaa, Personal Communication, September 8, 2004). Students from Grades 6 to 9 are the target age group. Based on these criteria, the peer educators are chosen and invited for training. At the end of 2002, there were 82 peer educators in Ulaanbaatar (26 in Khanuul district, 28 in Soukhbaatar district and 28 in Nalaikh district); 30 peer educators in Soukhbaatar Aimag; 29 peer educators in Selenge Aimag; 24 peer educators in Tuv Aimag and 28 peer educators in South Gobi Aimag. In the fall of 2004, there were 19 schools with the peer education program in Mongolia and the number of peer educators had decreased; there were 24 peer educators in Ulaanbaatar (10 in Khanuul district, 5 in Soukhbaatar district and 9 in Nalaikh district); 3 peer educators in Soukhbaatar Aimag; 10 peer educators in Selenge Aimag; 3 peer educators in Tuv Aimag and 4 peer educators in South Gobi Aimag. The number of peer educators has decreased because training for peer educators begins when the student is in grade 7 (in each soum and aimag center). Soum schools only have classes up to the eighth grade and thus after grade 8, if a student wishes to continue their education, they are sent to the aimag center. As such, some of the peer educators trained in each soum school have now progressed to the aimag center, discontinued school education or finished their schooling and graduated. At present, those soum schools no longer have peer education programs, thus the number of schools with a peer education program has decreased. Grade 7 students are part of the peer education program for a period of 3 years, at which time they graduate from secondary school in grade 10. At present, only grade 10 students in 16 schools have been exposed to peer education classes, for a period of 3 years, as some of the schools had the program introduced less than 3 years ago.

Peer Educator Training

Currently, there are approximately 1-7 peer educators per school. A training session for the students is held in the fall or spring of each year. DMS health professionals prepare for the training workshop, by reading HIV/AIDS related literature from National Alliance Federation (NAF) and UNAIDS. They make contacts only through the school nurses/doctors; they do not ask the directors if they would like peer educators at their schools. It was mentioned that prior to the introduction of the adolescent cabinets, the role of the school/doctor was limited to sanitation. Since the adolescent-friendly initiative on sexual health (MOH & WHO, 2002), school doctors have been given a greater role; introducing sexual health to the students and providing them with education material. The DMS health staff has primarily chosen school doctors as the focal contact at each school. Whether or not they are the most appropriate source still needs to be evaluated. After students are chosen, they are gathered from different schools in each soum and then trained in the aimag center, or they may be all from the same aimag center. Approximately 16-18 students are taught at one session. The session lasts for a period of 3 days, typically starting on a Monday and ending on a Wednesday. On the first day of the training session, school doctors are invited to participate so that can become familiar with the content of the peer education program. Doctors are given letters to assure responsibility for continuing the program at each respective school and asked to sign the letter. Teachers are not included in the training session, because they shift jobs often and thus it is easy to lose track of them. The director of each school (equivalent to a 'school principal') is not involved in the peer education training, but

when the training session is completed, the student has the responsibility to meet with their director to explain the purpose of the program.

The peer educator training workshop hopes to meet six goals within 3 days of training. These goals are:

Goal 1- Students will have the teaching skills to conduct sexual health training and discussion

Goal 2- Students will have knowledge about physical and emotional changes that occur during puberty and will learn about their function

Goal 3- Students will name values in terms of love, dating, family and sexual life.

Goal 4 – Students will learn about decision-making, communication style and not to give in to peer pressure

Goal 5 – Students will learn about methods of STI prevention, common symptoms and ways of transmission

Goal 6 – Students will learn about ways to protect themselves from getting an STI, unwanted pregnancy and sexual assault.

With the goals in mind a curriculum was established and divided into 3 broad topics spread across 3 days.

<u>Day 1:</u>

- General health topics are introduced, such as why health is important and human development, including the structure and function of genital organs.
- The value of training, such as why there is a need to train individuals and the methodology behind training. Students are taught that training involves planning

and preparation. In planning, students are taught that DMS had to analyze the situation, identify the need, identify the trainee and then select the topics. Preparation of a lesson plan is very important. As such, they have to take care when they are preparing their peer education lesson plan for their classmates.

Day 2:

- Students are taught about sexually transmitted infections. Specifically, they are taught modes of transmission and symptoms associated with each sexually transmitted infection.
- Prevention practices are also taught. Students are shown how to use condoms and why using condoms or other forms of contraceptives are important.

Day 3:

- Discussion of interpersonal skills, such as refusal skills (how to not give into peer pressure) and how to formulate safe decisions.
- Relationships are also emphasized. Students have a discussion on love and friendship and how it can influence sexual health positively.

However, in some instances this last component of interpersonal skills is downplayed in favor or anatomy and physiology of reproductive health organs. Most of the training involves didactic methods. Sometimes students are divided into groups, and asked to participate in games and discussion. The students are also given a peer education manual developed by the National AIDS Federation (NAF) to take home.

The Peer Education Manual

The peer education manual produced by NAF is a reference guide for the peer educators when they are teaching their fellow classmates. It is divided into 4 chapters. The first chapter discusses general information regarding: HIV/AIDS (specifically what is the virus and how a person acquires HIV), information about condom use (both female and male) and how to use a condom; as well as myths about modes of transmission and infection. The second chapter discusses sexually transmitted infections, giving a brief summary of the etiology behind each STI, as well as the benefits of early treatment and where to go for more information. The third chapter discusses the risks associated with unprotected sex and provides a list of questions that each individual should ask themselves before a sexual encounter. The questions ask the student to evaluate whether or not they are ready for sexual intercourse and if they are, if they have taken the necessary steps to protect against HIV/AIDS and STIs (unintended pregnancies are not mentioned). The fourth chapter integrates a model of decision-making, which each student should adhere to, before making any general decision, including the decision of having sexual intercourse. The chapter begins by explaining that everyday people have to make different kinds of decisions. It emphasizes that when and with whom to have a sexual contact can make a great impact on their lives. It also explains that when making any kind of decision, an individual should be actively making their own choices, instead of leaving it up to other people or to circumstance. To be successful at decision-making, individuals should be making a decision that will bring the most effective results, by including values and intuitions. The model asks the students to define the issue that needs to be resolved (for example whether to have sexual intercourse), to make lists of all of

the alternatives, to evaluate each alternative with advantages and disadvantages and finally to compare the possible consequences and results of each alternative to make the final choice. This chapter also discusses three risks associated with unprotected sex; physical risk, psychological risk and social stigmas attached with the possible consequences of unsafe sex. Thus it shows students, that in order to avoid these risks, an effective model of decision-making is essential.

Research Aims of the Study

STI rates are increasing in Mongolia and the concern that HIV could become a future problem in Mongolia if effective public health initiatives are not implemented needs to be addressed. The following two research aims will be addressed in the following chapters.

Research Aim 1

The first study aim is to determine and compare the knowledge, attitude, self-efficacy and sexual practices of students in schools with the peer education program to students in schools without the peer education program in Mongolia.

Research Aim 2

To investigate the strengths and weaknesses of the peer education program in Mongolia and to make recommendations to the Mongolian partners on how the sexual health peer education program can be improved.

Research Question 1:	What effect has the peer education program had on adolescent sexual health knowledge, attitudes towards using protection to decrease risks of STIs and unwanted pregnancies, self-efficacy and practices for using protection?
Research Question 2:	What are the strengths and weaknesses of the program and do they play a role in the quality and delivery of the peer education program?

REFERENCES

Aassve, A., Altankhuyag, G. (2002). Changing Patterns of Mongolian Fertility at a Time of Social and Economic Transition. *Studies in Family Planning*. 33, 165-172.

Agha, S. (2002). An evaluation of the effectiveness of a peer sexual health intervention among secondary school students in Zambia. *AIDS Education and Prevention* 14, 269-281.

Agha, S. (2002b). A Quasi-Experimental Study to Assess the Impact of Four Adolescent Sexual Health Interventions in Sub-Sahara Africa. *International Family Planning Perspectives* 28; 67-70 & 113-118.

AIDS Weekly. (2003). U.N. report warns of HIV/AIDS among adolescents. HIV Risk Factors. 13-14.

AIDS Vaccine Weekly. (2003). U.N: Global AIDS epidemic rampant. *NewsRx*. 5-6.

American Public Health Association (2003/2004). World's Largest-ever Youth Generation Faces Health Risks. *The Nations Health*, 25.

Bandura, A. (1982). Self-efficacy mechanisms in human agency. *Am Psychol*, 37 122-147.

Bandura, A. (1977). *Social Learning Theory*. Prenctice-Hall, New Jersey. 194-213.

Burstein, G.R., Lowry, R., Klein, J., Santelli, J.S. (2003). Missed Opportunities for Sexually Transmitted Diseases, Human Immunodeficiency Virus, and Prevention Services During Adolescent Health Supervision Visits. *J Pediatrics* 111, 996

Campbell, C. & MacPhail, C. (2002). Peer education, gender and the development of critical consciousness; participatory HIV prevention by South African youth. *Social Science & Medicine* 55, 331-345.

Cecil, H & Pinkerton, S.D (1998). Reliability and validity of a self-efficacy instrument for protective sexual behaviors. *Journal of American College Health* 47, 113-121.

Dubois-Arbert, F., Jeannin, A., Konings, E., Paccaud, F. (1997). Increased condom use without other major changes in sexual behavior among the general population in Switzerland. *Am J of Public Health* 87, 558-566.

Dunn, L., Ross, B., Caines, T., Howarth P. (1998). A school-based HIV/AIDS prevention education program: outcomes of peer-led versus community health nurse led interventions. *The Canadian Journal of Human Sexuality* 7, 339-345.

Ebright, J.R., Altantseteseg, T., Oyungerel, R. (2003). Emerging Infectious Diseases in Mongolia. *J Emerging Infectious Diseases* 9, 1509-1515.

Engenderhealth (2004). Country by Country: Mongolia. (online source: www.engenderhealth.org/ia/cbc/mongolia.html)

Fee, N & Yousef, M (1993). Young people, AIDS and STD Prevention: Peer approaches in Developing Countries. Unpublished paper prepared for WHO Global Progamme in AIDS. Geneva, Switzerland.

Gerdts, C. (2002) Population Council. *Universal Sexuality Education in Mongolia: Educating Today to Protect Tomorrow*. 5-30. Ulaanbaatar, Mongolia.

Gokengin, D., Yamazhan, T., Ozkaya, D., Aytug, S., Ertem, E., Arda, B., Serter, D. (2003). Sexual Knowledge, Attitudes, and Risk Behavrios of Students in Turkey. *J of School Health*, 73, 258-263.

Harden, A., Oakley, A., Oliver, S. (2001). Peer-delivered health promotion for young people: A systematic review of different study designs. *Health Education Journal 60,* 327-338.

Horizons Population Council. (1999). *Peer education and HIV/AIDS: Past Experience, Future Directions.* Alabama, USA

Hope, K.R. (2003). Promitng Behavoir Change in bostwana: An assessment of the Peer Education HIV/AIDS Prevention Program at the Workplace. *Journal of Health Communications* 8, 267-281.

Japan International Cooperation Agency (2002). *Country WID Profile (Mongolia).* Planning and Evaluating Department. Ulaanbaatar, Mongolia.

Kasen, S., Vaughan, P., D and Walter, H.J. (1993). Self-efficacy for AIDS preventive behaviors among tenth grade students. *Health Education Quarterly* 19, 187-202.

Kirby, D., Short, L., Collins, J., Rugg, D. (1994). School-based programs to reduce sexual risk behaviors: a review of effectiveness. *Public Health Reports*, 109.

Manaseki, (1993). Mongolia: a health system in transition. *British Medical Journal* 307, 1609-11

McCarthy, M. (2003). HIV prevention efforts reach fewer than one in five at risk. *The Lancet*, 361, 1711

McKay, A. (2000). Common questions about sexual health education. *Sieccan Newsletter* 35, 129-137.

Milburn, K. (1995). A critical review of peer education with young people with special reference to sexual health. *Health Education Research* 10, 407-420.

Milburn, K & Watson, S. (2000). Understanding peer education: insights from a process evaluation. *Health Education Research* 15, 85-96

(MOH), United Nations Population Fund (UNFPA) RH Unit. (1997). Report Regulation and Management of Contraceptives and essential reproductive health drugs in Mongolia.

MOH, WHO, NCHD. (2001). *Health Services for Adolescents. The way forward in Mongolia.* Review Report. Ulaanbaatar, Mongolia.

MOH, WHO. (2002). *Making Health Services in Mongolia Adolescent Friendly, Using a Quality Improvement Approach.* "Improving the outlook of adolescent girls and boys in Mongolia" project & "Adolescent health and development WHO component". Ulaanbaatar, Mongolia.

MOH, WHO, UNFPA. (2004). Assessment of Adolescent Friendly Services in Mongolia. Ulaanbaatar, Mongolia.

NCHD & GTZ (2002). The Survey Report on Peer Education Training. Ulaanbaatar, Mongolia.

NCHD & UNFPA (2001). Unwanted Pregnancies and Abortions in Mongolia. Ulaanbaatar, Mongolia.

National Center for Education and Training on Addiction (NCETA). (2002).Chapter 4. *Theoretical Models Applicable to Peer Education.* Adelaide, Australia.

National Statistics Office. (1998). National Statistics Data. Ulaanbaatar, Mongolia 1999

Nelson, K.E., Williams, C.M & Graham, (2001). N.M.H. *Infectious Disease Epidemiology: Theory and Practice.* Maryland: Aspen Publication. 611-652.

Netesov, S.V., Conrad, J.L. Emerging Infectious Diseases in Russia, 1990-1999. (2001). J Emerg INFECT Dis 7, 1-6.

New Horizons. (October 2003). *Health.* The Newsletter of the UN in Mongolia. 4-10.

Okonofua, F.E., Coplan, P., Collins, S., Oronsaye, F., Ogunsakin, D., Ogonor, J.T., Kaufman, J.A., Heggenhougen, K. (2003). Impact of an intervention to improve treatment-seeking behavior and prevent sexually transmitted diseases among Nigerian Youths. *International Journal of Infectious Diseases* 7, 61-74.

Pandey, R.N. (2002).Changing knowledge, attitude and practice of family planning methods in an economy under transition. *Health and Population*. 25, 124-139.

Patel, A & Amarsanaa, D. (2000). Reproductive health, gender and rights in Mongolia. Ulaanbaatar, Mongolia: UNFPA and MOHSW.

Purevdawa, E., Moon, T.D., Baigalmaa, C., Davaajav, K., Smith, M.L. & Vermund, S.H. (1997). Rise in sexually transmitted diseases during democratization and economic crisis in Mongolia. *International Journal of STD & AIDS*, 8. 398-401.

ReCAPP: Theories & Approaches: *Social Learning Theories*. (2002) (Online Source: http://www.etr.org/recapp/theories/slt/index.htm)

Roberts, A. (2001). *A description of the socio-cultural context of sexual health in Ulaanbaatar, Mongolia for a school-based peer education program*. Master's Thesis, University of Alberta, Edmonton, Alberta.

Roberts, A.B, C. Oyun, E. Batnasan, L.Laing (2005). Exploring the social and cultural context of sexual health for young people in Mongolia: implications for health promotion. *Social Science and Medicine* 60, 1487-1498.

Robinson, B., & Solongo, A. (2000). *The Gender Dimension of Economic Transition in Mongolia.* A Manual of Applied Economics for a Country in Transition. Edward Elgar Publishing Ltd. United Kingdom. 231-255.

Rotheram-Borus, M.J., Okeefe, Z., Kracker, R., Foo, H. (2000). Prevention of HIV among Adolescents. *Society for Prevention Research*, 15-30.

Scales, P. (2001). Overcoming future barriers to sexuality eduction. *Theory and Practice* 28, 172-176.

Shain, R.N., Piper, J.M, Newton, E.R., Perdue, S.T., Ramos, R., Champion, J.D., Guerra, F.A. (1999). A Randomized Control Trial of a Behavioral Intervention to Prevent Sexually Transmitted Disease among Minority Women. NEJM 340, 93-100.

Stephenson, J., Obasi, (2004). A. HIV risk-reduction in Adolescents. *The Lancet* 363, 1177-1178.

Sumberzul & Oyunbileg (2002). A case-study on adolescent health and development in Mongolia. Ulaanbaatar, Mongolia: WHO.

Taquette, S.R, de Vilhena, M., de Paula, M.C. (2004). Sexually Transmitted Diseases and Gender: a cross-sectional study with adolescents in Rio de Janeiro. *Cad. Saude Publica* 20, 282-290.

UNAIDS. (2000). *Report on the global HIV/AIDS epidemics*. Geneva, Switzerland

UNAIDS. (2002). *Peer education: concepts, uses and challenges*. Geneva, Switzerland.

UNAIDS. (2003). *A Joint Assessment of HIV/AIDS Prevention Treatment and care in China*. China.

UNICEF. (2000). Youth people and HIV/AIDS: Opportunity in Crisis. Geneva, Switzerland.

United Nations Development Fund (1998). Assessment on Alcoholism in Mongolia. Government of Mongolia and UNDP Mongolia.

United Nations Development Fund (2003). Human Development Report: *Urban-Rural Disparities in Mongolia*. Government of Mongolia and UNDP Mongolia.

United Nations Population Fund. (2002). *Third Programme of Assistance to the Government of Mongolia.* Ulaanbaatar, Mongolia.

United Nations Population Fund & AVSC International. (2000). Report on a situation analysis study of Mongolia. Executive Summary. Ulaanbaatar, Mongolia.

United Nations Population Fund, German Technical Cooperation RH project, Population Teaching and Research Center, Margaret Sanger Center International, Ministry of Science, Technology, Education and Culture, Ministry of Health, (1999) *Knowledge, Attitudes and Practices Related to Reproductive Health and Sexuality Students Mongolia: 1999 Baseline Survey*. Ulaanbaatar, Mongolia.

United States Department of Education. (2003). The higher education center for alcohol and other drug prevention. Online Site: http://www.edc.org/hec/

Wolf, R.C., Tawfik, L.A. & bond, K.C. (2000). Peer promotion programs and social networks in Ghana: Methods for Monitoring and Evaluating AIDS prevention and reproductive health programs among adolescents and young adults. *Journal of Health communications* 5, 61-80.

CHAPTER 3

Effectiveness of a Sexual health Peer Education Program for Secondary School Students in Mongolia

Effectiveness of a sexual health peer education program for secondary school students in Mongolia

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Key words: Public Health, Epidemiology, HIV/AIDS, Sexually transmitted diseases/infections, Adolescent, Mongolia, Sexual Health Interventions/Education, Peer education and Evaluations.

ABSTRACT

Sexually transmitted infections (STIs) in Mongolia are increasing, particularly among adolescents. Sexual health education is imperative to preventing further increase of STIs and spread of HIV/AIDS. This study evaluates the effectiveness of a peer-led sexual health program for adolescents in Mongolia. We compared sexual health knowledge, attitude, self-efficacy and practices between Grade 10 students of schools with a peer education program and Grade 10 students of schools without a peer education program. These comparisons were made using survey data collected at 16 schools in the fall of 2004. Of the 720 randomly selected students, 647 (89.86 %) completed the survey. We used multilevel regression methods to investigate the effects of the program. Students of schools with the program were statistically significantly more knowledgeable, had less traditional attitudes and had greater awareness of their self-efficacy in regards to sexual health. Students from schools with the peer education program were more likely to practice safe sex however the difference was not statistically significant. Practice was found to be statistically significantly safer in schools, in a subset of schools that had small teams of peer educators. The findings from this study will be used to improve the sexual health peer education program in Mongolia, as well as for future sexual health interventions aimed at rural youth in order to decrease the incidence of STIs and HIV/AIDS in the country.

INTRODUCTION

HIV/AIDS has become a disease of the young (Nelson et al. 2001) Of the 1.2 billion adolescents in the world (APHA, 2003/2004). UNAIDS estimated that in 2004, 11.8 million were living with HIV/AIDS (Stephenson & Obasi, 2004). The implementation of effective preventative programs is needed to curb the increasing number of HIV/AIDS cases among adolescents. Primary prevention in the form of school-based prevention programs can be an "extremely important component of efforts aimed at reaching adolescents" (Agha, 2002). The American Public Health Association in (2003) reported that "half of all new HIV infections and at least a third of more than 333 million new cases of curable sexually transmitted diseases each year occur in people ages 15-24" (APHA, 2003/2004).

Mongolia is a country where its citizens are vulnerable to HIV infection. Even though Mongolia is still considered a low HIV prevalence area (Ebright et al., 2003), STI rates have increased since 1993 (Kipp et al., 2002), indicating unsafe sex and potential for HIV transmission (UNAIDS, 2000). In particular, Mongolia also has a relatively young population (UNDP, 2003). In Mongolia close to one half of the STIs occur in those people who are less than 25 years of age (New Horizons, 2003). As such, an adolescent sexual health program focusing on primary prevention in Mongolia is crucial before the HIV epidemic spreads.

Since the early 1990's, peer education has been proposed as an effective school-based intervention method for youth (Wolf et al., 2000). A sexual health peer education program for secondary school students in Mongolia was first launched in 2001.

Preventative public health initiatives in general (Veugelers & Fitzgerald, 2003; Leaver et al., 2004) and peer education specifically have been rarely evaluated with respect to their effectiveness. Such evaluations are important to assess the benefits and weaknesses of a peer education program and to justify broader implementation of successful programs. In the present study, we sought to determine what effect the peer education program had on adolescent sexual health knowledge; their attitudes towards using protection to decrease risks for HIV/AIDS, STIs and unwanted pregnancies; their confidence to make healthy choices (self-efficacy); and their practices for using condoms.

METHODS

The Peer Education Program

The present study is an evaluation of an existing sexual health peer education program in Mongolia. The existing program was first piloted in the fall of 2000 in 2 schools by the University of Alberta, Directorate of Medical Services (DMS), (the health promotion unit of the Mongolian Ministry of Health) and Die Deutsche Gesellschaft fuer Technische Zusammenerbeit (GTZ) (Roberts et al., 2005). Semi-structured focus group interviews with students and teachers were used to formulate the program content (Roberts et al., 2005). The program has since been implemented in 48 schools in Mongolia. Areas in Mongolia where GTZ has sustainable development units already in place (mostly rural areas which tend to be underserved and lack health personnel) are chosen as sites for the school peer education program. The peer educators are chosen by local GTZ coordinators and teachers based on the following criteria: openness, student

interest, intelligence (grades), expressiveness, communication skills, and friendliness. A training session by DMS is held in the fall or spring of each year. Approximately 16-18 students are gathered from different schools and trained for a period of 3 days.

The Study Population

In the fall of 2004, adolescents between 15-19 years of age (corresponding to grade 10 in Mongolia) who attended a school that had a sexual health peer education program for a period of 3 years were compared to students of the same age group and grade who attended a school without the program. Out of the 16 schools that had the program for 3 years, we selected 9 schools on the basis of geographic diversity and travel logistics, one of which declined participation because of scheduling difficulties. We also selected 8 schools without the program, frequency matched to those with the program on the basis of school size, class size, and urban or rural setting. We excluded schools nearby schools with a peer education program to avoid contamination of information. In total we selected 16 schools: 3 schools with the program and 3 schools without the program in Ulaanbaatar; 1 school with the program and 1 school without the program in 2 districts of Ulaanbaatar and 8 schools (4 with the program and 4 without the program) in 3 rural provinces of Mongolia.

From each school we randomly selected 45 students using a random number table. Of the total 720 students invited, 647 (89.86%) participated and completed the survey. The survey took approximately 1 hour to complete and school staff were not permitted to be in the room during the administration of the questionnaire. Approval for

the distribution of the questionnaire was granted by the Mongolian Ministry of Health (DMS) and The Mongolian Ministry of Education.

The Survey

When sexual behavior is examined, the standard practice is to use knowledge, attitude and practice (KAP) surveys (Wolf et al., 2000). We chose a KAP survey developed, validated and used in 2002 by DMS and GTZ to assess baseline sexual health data among secondary school students in Mongolia (NCHD & GTZ, 2002). Questions regarding self-efficacy and practice were added to the questionnaire to allow for a more in-depth analysis of sexual health behavior (Cecil & Pinkerton, 1998). The survey contained questions on knowledge (including identification of STI symptoms and methods of transmission and protection), attitude questions, questions on practice (sexual practices, including condom use), and questions on self-efficacy (students were asked to evaluate their confidence levels towards current or future sexual practices). We calculated scores on the basis of 38 knowledge questions, 9 attitude questions, and 15 self-efficacy questions. Practice was measured only for those students that were sexually active at the time the survey was administered. Practice was measured in terms of, always condom use during the last 3 months of sexual intercourse.

School Factors

Before we administered the survey, we interviewed each school principal as well as the school doctor and headmaster on general school characteristics. The percentage of students from a Ger District attending the school was used as a marker for SES. Ger

districts are considered as socio-economically disadvantaged areas, generally located on the outskirts of cities. We also wanted to explore, if having a health clinic nearby was an important factor for safe sexual practices. In Mongolia, health clinics are areas where students can obtain condoms and more information on sexual health (MOH, WHO, 2002). To reduce biases and avoid contamination of the results obtained, the question of whether or not the school had been adopted by an international organization was asked. If an international organization had substantive involvement within the schools, it would be unclear if the results obtained would be due to the program or due to the organization affiliation.

Statistical Analysis

We used multilevel regression methods to examine the effects of a peer education program and school factors on the following outcomes: knowledge, attitude, self-efficacy and practice. We considered the peer education program and school factors as contextual factors and treated both as second-level covariates. Knowledge, attitude and self-efficacy were treated as first-level outcomes in the multilevel linear regression. To facilitate interpretation of our findings, we exponentiated the resulting beta coefficients to represent "relative increments" or "relative risks" of the peer education program and school factors associated with a 10% increment in the knowledge, attitude and self-efficacy score. Practice was considered a first-level binary outcome in the multilevel logistic regression analysis, for which we calculated odds ratios and 95% confidence intervals. All analyses were adjusted for age and gender that were considered as first-level confounders.

RESULTS

Of the 647 students, who completed the KAP questionnaire, 320 (49.5%) attended one of the 8 schools with a sexual health peer education program and 327 (50.5%) attended one of the 8 schools without a sexual health peer education program. Table 1 demonstrates characteristics of the students and their schools. Students from schools that are part of the peer education program had higher sexual health knowledge levels, had less traditional attitudes, had a greater sense of their self-efficacy and reported higher levels of condom use within the last 3 months of sexual intercourse. The practice component of the questionnaire was filled out by the 149 students who reported having been sexually active in the three months prior to the time the survey was administered (Table 1).

Table 2 shows that: knowledge attitude and self-efficacy levels are statistically significantly higher among students attending schools with peer education programs relative to students from schools without such programs. Specifically, grade 10 students who attend schools with a peer education program are 2.43 times more knowledgeable in the area of sexual health than grade 10 students from schools without the program (Table 2). Sexual practices were safer, though not statistically significant. Results also show that students attending socio-economically advantaged schools (less than 50% from the ger district) were more likely to use a condom during the past 3 months of sexual intercourse (Table 2). Parsimonious models were examined but the only variable that held at the secondary level was the existence of a peer education program.

We explored how the delivery of the sexual health peer education would impact adolescent knowledge, attitude, self-efficacy and practice (Table 3). We observed that an irregular lesson plan was statistically significant for knowledge and self-efficacy than a structured approach (Table 3). In addition we observed that, educator teams of 1 or 2 peers for each grade 10 class was considerably more effective for knowledge, attitude, self-efficacy and practice (Table 3). Students from schools where the peer education program was delivered by small teams were statistically significantly more likely to engage in safer sex, relative to their peers in schools without peer education programs.

DISCUSSION

The peer education program in Mongolia focuses on knowledge of transmission, symptoms and prevention of STIs and HIV/AIDS. It also focuses on methods of evaluating high risk situations and educating adolescents on how to make the corresponding choices in order to protect themselves against STIs, HIV/AIDS and unwanted pregnancies. It does this by giving adolescents the tools to change prior behavioral practices. We demonstrated that, after 3 years of delivery, grade 10 secondary school students were more knowledgeable, had less traditional attitudes and had a greater sense of their self-efficacy. Improvements in safe sex practices, however, were not statistically significant, likely due to the small size of the sexually active subgroup. It is important to recognize that the peer education program is within the Mongolian socio-cultural context and as it was explored in a study by Roberts et al. (2005) condoms

appeared to have a promiscuous connotation in Mongolia despite efforts by the Ministry of Health and various NGOs. It can be speculated that this has some bearing on the outcome of condom use, but more research is still needed. However, in regards to safe sex practices, we found that 1-2 peer educators for each grade 10 class appeared to have a more substantial effect on student knowledge, attitude, self-efficacy and condom use during regular intercourse, than 3-4 peer educators. We are not certain as to the reason for this finding, but it may be the case that smaller groups work better as a team and have the potential to feel a greater sense of responsibility and ownership of the program. This area needs to be explored further. An irregular lesson plan differed from a structured lesson plan, as peer educators initiated sexual health discussion amongst their peers whenever there was free class time, as opposed to set times, as in the structured lesson approach. Since it was found that an irregular lesson plan was statistically significant for knowledge and self-efficacy, it can be deducted that perhaps students feel more comfortable discussing sexual health issues in a relaxed environment than a more structured approach. These findings parallel those of another study that found that an informal sexual health peer educational program was more effective (Okonofua et al., 2003).

The justification for peer education follows from Bandura's social learning theory (Bandura, 1982). In this model, self-efficacy is thought to be shaped by past and present behavior, as well as by the social environment via observation of behaviors in others and through verbal support and persuasion. In the application of social learning theory through a peer education program, the peers are encouraged to: observe and imitate the

behaviors of their peer educators and of others, see positive behaviors modeled and practiced, increase their own capability and confidence to implement new skills, gain positive attitudes about implementing new skills, and experience support from their environment in order to use their new skills (ReCAPP, 2002). Self-efficacy, a component of social learning theory (Bandura, 1997) refers to the ability an individual has to shape the self; the belief that one can influence one's own thoughts and behaviors. It focuses on individual's convictions that they can exercise control over their motivations, behaviors and social environments (Cecil & Pinkerton, 1998) and the perception that one can accomplish what is desired or expected (Scales, 2001). This concept has been readily incorporated as a method to examine sexual health decisions and thus evaluate sexual education interventions (Kasen et al., 1993; Dunn et al., 1998). Our study found that the peer education program in Mongolia did improve self-efficacy perceptions, however when behavior was measured by way of condom use, the program did not have a substantial effect.

STI rates are increasing in Mongolia. Between 1983 and 1995, Syphilis incidence increased from 18 to 32 per 100,000, gonorrhea from 51 to 142 per 100,000 and trichonomas from 47 to 155 per 100,000 (Purevdawa, 1997). Thus, educating secondary school students, a primary risk group seems essential. Not only will it limit the incidence of STIs but also prevent HIV/AIDS in an early stage of the epidemic in Mongolia. As of 2001, only two subjects have been officially diagnosed with HIV in Mongolia (Ebright, 2003). However, because of increased rates of STIs and the fact that Mongolia borders two countries with dramatic increasing rates of HIV/AIDS (UNAIDS, 2003), there is

concern that HIV could become a future problem in Mongolia if effective public health initiatives are not implemented. Here we demonstrated the effectiveness of peer education programs for adolescents and recommend the implementation in all schools in Mongolia.

The survey was administered in an anonymous way. No names were asked and no teachers were present during or after its administration. However, findings were limited by the validity of using a self-administered questionnaire. There is always the concern that students may not feel comfortable addressing sexual health questions. In particular, questions regarding sexual practices may be over or understated. Also the comparability of the schools could be a potential bias because the schools with the peer education program in rural Mongolia are all in GTZ implementing provinces. All schools chosen in rural Mongolia without the program are not in GTZ project areas. Thus, there may be a greater involvement by GTZ in those areas which could have affected the results. A major strength of the study was that we surveyed 50% of the schools in Mongolia that have had the peer education program for a period of 3 years. Also, we covered diverse school settings and included both urban and rural measures. We also addressed the impact of having a health clinic and doctor at the school.

In summary, even though Mongolia is a low prevalence HIV area, the increasing STI incidence among young people in Mongolia and the increasing number of HIV/AIDS in the countries bordering Mongolia is a concern. Education as a prevention method is necessary in order to stop the pandemic. Sexual health peer education programs in schools were demonstrated to elevate adolescent's knowledge, attitudes and

self-efficacy regarding STIs and HIV/AIDS. Broader implementation of peer education programs in the school system are justified as they have the potential to inform the students about the risk factors associated with unsafe sexual practices.

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REFERENCES

Agha, S. An evaluation of the effectiveness of a peer sexual health intervention among secondary school students in Zambia. (2002*). AIDS Education and Prevention* 14, 269-281.

American Public Health Association (2003/2004). World's Largest-ever Youth Generation Faces Health Risks. *The Nations Health*, 25.

Bandura, A. (1977). *Social Learning Theory*. Prenctice-Hall, New Jersey. 194-213.

Bandura, A. (1982). Self-efficacy mechanisms in human agency. *Am Psychol*, 37 122-147.

Cecil, H & Pinkerton, S.D (1998). Reliability and validity of a self-efficacy instrument for protective sexual behaviors. *Journal of American College Health* 47, 113-121.

Dunn, L., Ross, B., Caines, T., Howarth P. (1998). A school-based HIV/AIDS prevention education program: outcomes of peer-led versus community health nurse led interventions. *The Canadian Journal of Human Sexuality* 7, 339-345.

Ebright, J.R., Altantseteseg, T., Oyungerel, R. (2003). Emerging Infectious Diseases in Mongolia. *J Emerging Infectious Diseases* 9, 1509-1515.

Kasen, S., Vaughan, P., D and Walter, H.J. (1993). Self-efficacy for AIDS preventive behaviors among tenth grade students. *Health Education Quarterly* 19, 187-202.

Kipp, W., Sodnompil, T., Tuya, M., Erdenchimeg, E., Nymadawa, P. (2002). Reproductive health in Mongolia: results from three provinces and one urban district. *Tropical doctor*, 32, 159-162.

Leaver, C.A, Allman D, Myers T, Veugelers P.J (2004). Effectiveness of HIV prevention in Ontario, Canada: A multilevel comparison. American Journal of Public Health 94, 1181-1185.

MOH, WHO. (2002). *Making Health Services in Mongolia Adolescent Friendly, using a Quality Improvement Approach.* Ulaanbaatar, Mongolia.

Nelson, K.E., Williams, C.M, Graham, (2001). N.M.H. *Infectious Disease Epidemiology: Theory and Practice*. Maryland: Aspen Publication. 611-652.

New Horizons. (October 2003). *Health*. The Newsletter of the UN in Mongolia. 4-10.

Okonofua, F.E., Coplan, P., Collins, S., Oronsaye, F., Ogunsakin, D., Ogonor, J.T., Kaufman, J.A., Heggenhougen, K. (2003). Impact of an intervention to improve treatment-seeking behavior and prevent sexually transmitted diseases among Nigerian Youths. International Journal of Infectious Diseases 7, 61-74.

Purevdawa, E., Moon, T.D., Baigalmaa, C., Davaajav, K., Smith, M.L. & Vermund, S.H. (1997). Rise in sexually transmitted diseases during democratization and economic crisis in Mongolia. *International Journal of STD & AIDS*, 8. 398-401.

ReCAPP: Theories & Approaches: *Social Learning Theories*. (2002) (Online Source: http://www.etr.org/recapp/theories/slt/index.htm)

Roberts A, Oyun C, Batnasan E, Laing L (2005). Exploring the social and cultural context of sexual health for young people in Mongolia: implications for health promotion. Social Science & Medicine 60, 1487-1498.

Scales, P. (2001). Overcoming future barriers to sexuality eduction. *Theory and Practice* 28, 172-176.

Stephenson, J., Obasi, (2004). A. HIV risk-reduction in Adolescents. *The Lancet* 363, 1177-1178.

UNAIDS. (2000). *Report on the global HIV/AIDS epidemics*. Geneva, Switzerland

UNAIDS. (2003). *A Joint Assessment of HIV/AIDS Prevention Treatment and care in China*. China.

United Nations Development Fund (2003). Human Development Report: *Urban-Rural Disparities in Mongolia*. Government of Mongolia and UNDP Mongolia.

Veugelers, P.J, Fitzgerald, A.L (2005). Effectiveness of School Programs in the Prevention of Childhood Obesity. American Journal of Public Health 95, 432-435

Wolf, R.C., Tawfik, L.A. & bond, K.C. (2000). Peer promotion programs and social networks in Ghana: Methods for Monitoring and Evaluating AIDS prevention and reproductive health programs among adolescents and young adults. *Journal of Health communications* 5, 61-80.

TABLE 3-1 - Characteristics of students attending schools with and without peer education programs in Mongolia

Student Characteristics		Adolescents from Schools with Peer Education Program (n=320)		Adolescents from Schools without Peer Education Program (n=327)
Student Age, %				
<17 years of age		18.4		11
17 years of age		65.9		70
>17 years of age		6.6		11.9
Gender, %				
Females		52.2		52.9
Males		39.4		40.7
Gr.10 Class Size, %				
<100 students		30		34.9
100-200 students		28.1		40.1
>200 students		41.9		25.1
Ratio of Students to Teachers, %				
<=30:1		0		48
>30:1		100		52
% of students who come from the Ger District				
<50%		22.8		0
50-80%		27.8		50.8
>80%		49.4		49.2
School in Metropolitan area, %		37.8		38.2
Clinic within 500m of the school, %		70.9		63.3
School Doctor, %		51.9		74.3
School adopted by an international organization, %		61.9		37.3
Knowledge Level (percentage score)	(n=320)	72.6	(n=327)	64.2
Attitude Level (percentage score)	(n=320)	70.1	(n=326)	65.0
Self-efficacy Level (percentage score)	(n=295)	70.4	(n=270)	55.7
Always condom use within the past 3 mos. of sex %	(n=75)	49.3	(n=74)	39.2

TABLE 3-2 - Importance of Peer Education and School Factors for Knowledge, Attitude, Self-efficacy and Safe Sex Practices for adolescents attending secondary school in Mongolia

	Knowledge N=647	Attitude n=646	Self-efficacy n=565	Practice n=149
School Factors	RR* (95%CI‡)	RR (95%CI)	RR (95%CI)	OR† (95%CI)
Existence of Peer Education Program	2.43 (1.37, 4.33)	1.78 (1.22, 2.61)	4.42 (2.29, 8.51)	1.67 (0.78, 3.59)
Gr. 10 Class Size				
<100 students	0.78 (0.31, 1.98)	1.00 (0.54, 1.87)	0.66 (0.21, 2.10)	1.79 (0.77, 4.18)
100-200 students	0.53 (0.23, 1.23)	0.70 (0.44, 1.11)	0.44 (0.13, 1.43)	0.44 (0.20, 0.97)
>200 students	1	1	1	1
Ratio of Students to Teachers (less than/equal to 30)	1.82 (0.94, 3.50)	1.53 (1.00, 2.32)	2.67 (1.41, 5.04)	1.12 (0.43, 2.96)
% of adolescents attending school who live in a Ger District				
<50% of adolescents	1.09 (0.38, 3.12)	1.04 (0.58, 1.85)	1.05 (0.39, 2.84)	2.36 (1.13, 4.92)
50-80%	1.25 (0.57, 2.72)	1.02 (0.60, 1.72)	0.71 (0.24, 2.04)	1.19 (0.51, 2.76)
>80%	1	1	1	1
Metropolitan area vs. non-metropolitan area	1.66 (0.89, 3.10)	1.27 (0.84, 1.93)	2.09 (0.92, 4.75)	1.24 (0.58, 2.64)
Existence of a Clinic within 500m of School	0.77 (0.35, 1.71)	0.78 (0.50, 1.23)	1.67 (0.62, 4.50)	0.97 (0.39, 2.37)
School Doctor	0.94 (0.44, 2.00)	0.94 (0.55, 1.61)	0.38 (0.14, 1.04)	0.54 (0.23, 1.26)
School adopted by an International Organization	0.88 (0.43, 1.80)	0.91 (0.57, 1.46)	2.52 (1.06, 5.99)	0.88 (0.39, 2.00)

*RR: relative risk † OR: odds ratio ‡ CI: Confidence Intervals

All risk estimates are adjusted for differences with respect to age and gender

TABLE 3-3 - The Significance of Frequency of Peer Education and Number of Peer Educators for Knowledge, Attitude, Self-efficacy and Safe Sex Practices

	Knowledge n=647	Attitude n=646	Self-efficacy n=565	Practice n=149
Peer Education Characteristics	RR* (95%CI‡)	RR (95%CI)	RR (95%CI)	OR† (95%CI)
Frequency of lesson				
No lesson	1	1	1	1
Irregular lessons	2.17 (1.20, 3.92)	1.39 (1.03, 1.88)	4.60 (2.49, 8.48)	1.55 (0.63, 3.80)
2x a month/semester	1.94 (0.85, 4.42)	1.85 (0.82, 4.17)	2.03 (0.49, 8.38)	0.98 (0.27, 3.58)
2x a week/semester	3.05 (0.72, 12.84)	1.99 (0.86, 4.62)	3.67 (1.00, 13.46)	1.11 (0.33, 3.73)
# of Peer Educators in School				
No Peer Educators	1	1	1	1
1-2 Peer Educators	5.03 (3.08, 8.21)	2.73 (1.42, 5.27)	10.64 (8.59, 13.19)	3.80 (2.26, 6.41)
3-4 Peer Educators	1.58 (0.93, 2.68)	1.37 (1.06, 1.77)	2.62 (1.29, 5.35)	1.13 (0.46, 2.75)

*RR: relative risk † OR: odds ratio ‡ CI: Confidence Intervals

All risk estimates are adjusted for differences with respect to age and gender

CHAPTER 4 – Results of Qualitative Evaluation

This chapter provides an overview of the findings from the focus group discussions with grade 10 secondary school students, peer educators and key informants overlooking the peer education program in Ulaanbaatar. It also includes information derived from the semi-structured interviews conducted in Dalanzadgad, South Gobi Aimag. The results address the following areas: (1) Issues that Face Young People in Mongolia (2) Benefits of the Peer Education Program (3) Weaknesses of the Peer Education Program (4) Other Findings (5) Peer Education Training and (6) Suggestions for Improvement.

We conducted the following focus groups in Ulaanbaatar (1) Grade 10 female students exposed to the peer education program (2) Grade 10 males exposed to the peer education program (3) Peer Educators and (4) Key informants (teachers, social workers and nurses/doctors) overlooking the program. We also conducted semi-structured interviews with peer educators in South Gobi aimag. It was found that the sexual health peer education program has benefited both the students and peer educators; some weaknesses in the program were identified as needing improvement. Minor differences were found between the focus groups conducted in Ulaanbaatar and the semi-structured interviews in South Gobi aimag in terms of the benefits and weaknesses of the peer education program.

Unfortunately, there was little information gathered from the focus group discussions. As mentioned in the limitations section, the results of the focus group discussions were limited due to the skill level of the moderator. The following evaluation

will be a discussion of the peer educator focus group findings strengthened with literature from Mongolia. Further probing was necessary for more in-depth answers. The findings from the discussion were consequently assigned to six broad categories developed by the researcher from the respondents' answers; however information was found that may be useful to health professionals to pursue more in-depth.

Issues that Face Young People in Mongolia

Most of the students mentioned that sex was a concern. The females mentioned only the possibility of becoming pregnant and the emotional pain attached to it as a concern. In Mongolia, abortion rates are increasing among women less than 20 years of age. In 1996, of women aged 13-20 who became pregnant, 2.9% had an abortion. In 1998, that number increased to 7.6% (NCHD & UNFPA, 2001). However, this statistic presented does not include, cases of abortion in private hospitals, which were estimated at 18% among women ages 15-24 (NCHD & UNFPA, 2001). As such, the value of addressing the issue through peer education classes is important. Currently, the peer education program does not focus on unwanted pregnancy. The peer education manual is produced by the National Aids Foundation (NAF) which places a strong emphasis on symptoms, methods of transmission and prevention of STIs and HIV/AIDS, but not unwanted pregnancies. Even though methods for prevention of STIs and unwanted pregnancies are fairly similar, (with the exception of oral contraceptives that do not prevent STIs) pregnancy was an issue that concerned the adolescent girls. However, concerns about acquiring STIs and or HIV/AIDS were not expressed. It may be a result of the peer education program; as evidence provided by the quantitative KAP survey

demonstrated, the students in schools with a sexual health peer education program were significantly knowledgeable in this area (RR=2.43).

The male student focus group did not express their concern about the risks associated with unprotected sex. It was not highlighted as an issue that was relevant to them. They did however; highlight that their concern is that sex is not discussed openly. One student said, "No one freely expresses their ideas but store them in their minds". This finding reflects the outcome of the study by Roberts et al. (2005). In the study it was found that the traditional values of a Mongolian society appear to reinforce that sex is a taboo topic. Sex as a taboo topic was emphasized by one of the themes extracted from the study, embarrassment. Embarrassment is a barrier to communication and to education. Mongolian "traditional values makes discussing sexual matters difficult" (Roberts, 2001;p.53). It is an uncomfortable subject to discuss and parents do not discuss sexual matters with their children. Discussing sex is considered a form of promiscuity, because it implies that one is sexually experienced and thus having sexual intercourse (Roberts 2001). Roberts et al. (2005) found that cultural connotations about condom use also imply promiscuity. Condoms are thus not discussed, as it is an embarrassing subject. Especially embarrassing for the male students in the study, was to negotiate condom use with a girlfriend; "doing so implies that she has had a bad reputation or that he has been promiscuous or unfaithful" (Roberts et al. 2005; p.1493). These findings (Roberts et al. 2005) coincides with the KAP survey results; the peer education program made considerable statistical significant improvement in knowledge, attitudes, self-efficacy, but when it came to, always condom use within the last 3 months of sexual intercourse, results were not statistically significant. The degree of openness in

discussing sex within the confines of a school based program is slowly allowing sex to not be considered a taboo subject, but there is still not complete openness.

The peer pressure associated with drinking at parties also appears to be important. One female stated:

> "Majority of girls engage in sexual activity as a result of drunkenness and partying. It would be nice to stop that kind of behaviors".

A 1998 Assessment on Alcoholism in Mongolia found that 71% of adolescents below the age of 20 and 54.7% under 16 years of age have begun to consume alcohol (UNDP 1998). The risks associated with drinking are currently not discussed in the peer education program; even though a majority of adolescents are drinking and thus have the possibility of engaging in risky sexual behavior (UNDP, 1998). In fact, it was found that in Mongolia, some students have had sex for the first time when they have become drunk at a party and when this occurs, they do not use a condom (Roberts, et al 2005). As such, there is a need to include other aspects of adolescent behavior that are linked to sexual health, not just concentrating on STIs and HIV/AIDS.

The key informants had a different perception of what was important for adolescents. They identified: communication; etiquette and manners; and dating as being the most relevant concerns for young people. Although reproductive health was mentioned, it was stated in the following manner, "dating issues" or "materials on reproductive health". Sex was not addressed directly, but indirectly such as by using the phrase "dating issues". This is strengthened by the findings in the study by Roberts (2001) where it was found that discussing sex was embarrassing for teachers and health staff; "teachers [in the focus group study] agreed that traditional [Mongolian] values are a barrier to sexual health communication and education" (Roberts, 2001; p.54).

The results presented parallel the content and structure of the peer education training. During the peer education workshop, more time is spent teaching structure and anatomy of reproductive organs than condom use. Also, only a few key informants are invited to the training workshop. They do not become familiar with sexual matters, while the students do. This increases the cross-generational communication and sexual health knowledge gap between students and adults, as revealed in the study by Roberts et al. (2005). In the study it was found that "Mongolian traditional values discourage cross-generation communication, making discussion about sexual matters between student-parent and student-teacher embarrassing" and that the "recent changes in society have increased the amount of sexual health information and education available, thereby creating a knowledge gap between adults and young people that make broaching the topic of sex even more difficult" (Roberts, 2001; 53). There is evidence to suggest that involvement of key informants is crucial for a peer education program to be successful (Hope, 2003).

Benefits of the Peer Education Program

Students mentioned that increased knowledge about sexual health matters was a benefit of the peer education program. Students said comments such as:

> "[sexual health knowledge] has increased. Before we had only 'Uerhel' [dating] magazine, but now we've got a handful of information and knowledge taught to us"

> "Before I used to know only couple basic [sexually transmitted] diseases, but now I've found about existence of many other diseases"

These findings coincide with that of the quantitative results using the KAP survey. The quantitative results demonstrated that grade 10 students in schools with a peer education

program were 2.43 times more knowledgeable in the area of sexual health than grade 10 students from schools without the program. Peer educators mentioned that attitude change was something that they noticed in their peers. One peer educator said that, "kids who are ignorant in the beginning change their attitudes and start listening". To what extent attitudes changed was not addressed by the moderator, however a change in attitude coincides with the findings from the KAP survey. Grade 10 students from schools with a peer education program had 1.78 times less traditional attitudes in regards to sexual health than students from schools without the program.

Self-efficacy, the perception that one has control over one's behavior in certain situations (Bandura 1977) also seems to have changed due to the peer education program. One student said that she now knows to, "say no with confidence, if not ready". Other students said:

> "It helped me to remind myself always about consequences such as my sexual partner abandons me, catching various diseases or later regretting on my whole life".
>
> "It made me ask myself 'what if' questions such as what if I get pregnant? What if I catch diseases? Or what if my family finds out about it?"
>
> "Once you hear about it [sex] it's always in your head. For instance, if I act certain way the consequences will pop in my head. Also, I've learned to ask myself whether I'm ready for it [sex] or not".

This finding coincides with the quantitative results which revealed that grade 10 students in schools with a peer education program said that they were 4.42 times more likely to have control about whether they should engage in safe sexual practices (self-efficacy).

Students said their knowledge about condom use had increased due to the peer education program

> "I've learned how to use condom from this program and I'm hoping that this will come handy some day"
>
> "[I've learned] protection methods. Most safest method is condom and exactly what condom protects from"
>
> "From peer education program I learned how to use a condom"

Interestingly, this does not coincide with the results from the KAP survey. Results showed that condom use has increased but it was not statistically significant. This revelation could be due to the traditional values of a Mongolian society, which view condom use as promiscuous (Roberts et al. 2005). Even though students have learned how to use condoms, they still feel apprehensive about using one when it comes down to actual practice. The researcher observed that in Mongolia for an individual to obtain a condom they had to go through a school doctor or visit the local pharmacy and ask the pharmacist behind the counter for one. It might therefore be an embarrassing situation for an adolescent to encounter. The theme extracted from Roberts (2001), that embarrassment plays a role in sex as a taboo topic could be a reason behind the discrepancy of the KAP survey results and those from the qualitative study. These finding needs to be further addressed in future studies.

Students made specific reference to the peer educators and said that they feel more comfortable speaking to them, because "we can talk back and forth" and they are "easy for us to understand". Overall students felt that the peer educators were good role models and that they feel more comfortable asking questions to peers their own age. One peer educator said:

> "Some kids come to me after class secretly and ask questions. For instance one girl asked me, which one is better to use female or male condom"

It seems that there is communication of sexual health out of class time, which is one of the goals of peer education (Milburn & Wilson; 2000). Students should be comfortable to discuss sexual health with the peer educators not only in a formal class setting, but in an informal manner. Even though, the fact that it is 'secret' implies that it is difficult for the students to openly discuss sex.

Peer educators also found that they benefited from their role. There was unanimous agreement that it was a good experience and that it improved their sexual health knowledge. They also said that the program increased their communication skills, including one student who said "I have better ability to talk in front of others" and another which said "I learned the ability to talk in front of people comfortably". Alongside these benefits, the peer educators also felt that they earned people's trust and that they developed skills to take better care of themselves in the area of reproductive health. The overall perception of the peer education program (as one student said) was that it is "the best method of teaching sexual health".

Key informants were elusive when discussing the benefits of the peer education program (which could in part due to the skill level of the moderator). Little information was gathered in this topic, however comments said were: "I think this issue, particularly, reproduction health is being addressed" and "[a positive side of the program] peer-peer feel comfortable with each other". It may also be that they are not aware of the benefits of the program, because their role is minimal. It was mentioned that they are not involved in the training process.

Weaknesses of the Peer Education Program in Mongolia

The student focus group revealed that the peer educators did not engage in frequent demonstration (drama's and role-playing) or discussions but mostly used didactic teaching methods. One student said that, "It does not click well when it's only talking". Another student said:

> "Peer education program is not an open conversation class, but a one person lecture, students cannot ask specific questions usually".

Didactic teaching methods are commonly used by peer educators to reach their peers (Campbell & MacPhail, 2002). However, it is emphasized that this is not the preferred interaction between peer educators and their peers. The peer educators should promote non-directive teaching methods, with frequent interactions. Non-didactic teaching helps students generate their own solutions to sexual health risks and to form their own conclusions, by incorporating them to engage in class discussion (Campbell & Jovchelovitch, 2000). The lack of comfort in engaging in sexual health related demonstrations and open discussions could perhaps follow from the traditional values of the Mongolian society which limits people's ability to talk about sex (Roberts, 2001). As mentioned, Mongolians are still becoming accustomed to the idea about discussing sexuality and thus the traditional teacher-student form of teaching takes precedence over open discussion.

Our study found that a major weakness of the program was the lack of support from the school staff. Students did not express this as a major issue, however the peer educators highlighted this as very important. One peer educator said that, "we have no support from the school". Another educator reiterated the comment by saying that, "the school puts pressure on us, without supporting us". In order for the program to be more

effective, support from the school in the form of a social network is needed (Wolf et al., 2000). Included in the social network of a peer educator, are the trainers. Peer educators felt they needed more support from the peer educator trainers. Effective peer educators need to be continually evaluated in order for them to reach their goal (Ochieng, 2003). Peer educators also felt that they were not educated enough and sometimes, one peer educator said, "we get stuck by their [students'] questions". Another educator said:

> "during menstruation, girls have a lot of pain. Why is this? Why do girls feel pain? We don't know how to answer these questions".

Thus, a greater support from the school staff, key stakeholders and trainers is needed. Peer educators all felt that they were overwhelmed by the amount of information and the pressure put on them. They have been led to believe that they have to answer complicated questions on reproductive anatomy and physiology as well. In the study by Roberts (2001), it was found that teachers in Mongolia prefer to teach straight forward topics with a biological focus such as fertilization, hygiene and anatomy, rather than sexuality. Thus, even though the peer educators are being trained in the area of sexual health, there is still too much emphasis placed on biology and not enough on safe sexual practices.

The students' perceptions of lack of support conflict with that of the key informants. All key informants said the program was progressing very well. Key informants felt the peer educators felt comfortable; as did the students and that the school body was very receptive and supportive. Thus, there seems to be a missing link between the key informants and the peer educators. Because the key informants are not integrated into the training process and are not followed up on a regular basis by the trainers, they may have a distorted view of the program. It was the researcher's observation that there

was little knowledge of the existence of the peer education program at each school among the school staff. When approaching each school for the quantitative arm of the study, it was difficult to track down the key informant in charge of the program at each school. It was the researcher's impression that the intervention delivery was sub-optimal. Several of the school staff was not aware that the sexual health peer education program even existed. It can be inferred that since the school staff is not aware that the program exists; the peer educators may feel that they lack the support of the school body. It is emphasized that involvement of the key informants and the school body from the beginning is crucial for the success and longevity of a sexual health program (Campbell & Foulis, 2002).

Other Findings

The student focus groups and the peer educator focus group both mentioned a form of discomfort when discussing sex in the peer education classes, such as fear of being ridiculed or teased.

> "One of the reasons no one asks anything is, not everyone is going to think good about that student. They might ridicule or make fun of that student for asking a so-called silly question".

What constitutes as 'good' or 'ridicule' was not probed further by the moderator.

> "When kids constantly make fun of them [peer educators], peer educators sometimes have to leave the class embarrassed"

The peer educators also said that they are 'ridiculed'. One peer educator stated that:

> "They make fun of us and tell us that we should stop talking about an adult subject or a weird thing. Sometimes they put us in shameful situations"

Another peer educator said, that "we're teased and called funny names". The key informant focus group also addressed this as problematic, saying that the students name call (it was not stated in the transcripts to which this refers to, the peer educators or to other students). In particular, it was revealed that the males sit in the back of the classroom and do not participate in the class. They either make noises or do other assignments. One student said that, "since our class educator is a girl, she gets teased by boys". Another study also identified that boys tended to joke around, instead of concentrating on important information about safe sexual practices in peer education programs (Campbell & MacPhail, 2002). It is the researcher's perception that greater support from school staff would alleviate some of the teasing.

Two themes could be at play here. The first is the role of embarrassment within the traditional values of Mongolian society when discussing sex (Roberts et al. 2005). The second theme is the gender roles assigned in Mongolian society (Roberts et al. 2005). The former has to do with the socio-cultural context of Mongolia. As mentioned, sex is taboo and discussing it openly can be difficult. Students' comments about comfort were as follows:

> "we cannot talk about it [sex] to our teachers, parents, or school nurses, but to classmates"
>
> "No one is brave enough to ask questions"
>
> "Although our classmates did not look serious during class, but they all turned to have taken a note and later on everybody was secretly talking good about the subject"

In the study by Roberts et al. (2005), it was revealed that people are shy and embarrassed to ask questions about sex. It may be the case that students are still not comfortable with the idea of having their peers or anyone discuss sexual matters with them.

The second theme; gender role, is also important when addressing the comfort level of students. In the focus group, boys were highlighted as not paying much attention and as initiating 'ridicule'. One student said:

> "Mostly guys sit in back seats [of the classroom] and act like as though they've become fathers and think they know about it already"

Mongolia is a patriarchal society (Roberts, 2001). In a patriarchal society women and men should have different behaviors when it comes to sex (Roberts, 2001). A study by UNFPA et al. (1999) found that 74% of Mongolian secondary students felt that women should behave differently than men when it comes to sex. In the study by Roberts et al. (2005), it was found that there was a power imbalance between males and females, especially when it came to initiation of sexual intercourse. Women were not in a position to have the last word about condom use and it was stressed that women should "not be knowledgeable about sexual matters and should not be sexually experienced" (Roberts et al. 2005; p.1494). Boys should already know about sex due the fact that they are males in a patriarchal society and should not be asking. Also, the 'ridicule' seen in the peer education class could be in part due to a power imbalance. When female peer educators give lessons, males are less prone to listen to the females, as they should already know about sexual matters and females should not be discussing sex.

The key informant focus groups also revealed that peer educators were being 'ridiculed', but no further probing by the moderator was done on why this was the case and why the key informants did not address this issue in the classroom.

Peer Education Training

The peer educators in this study felt they were not taught enough interactive methods. One peer educator said that, "there was mostly lecturing [by the trainers] and that there needs to be more conversation". The session itself was mentioned as, "very competitive" and that "we're not taught how to teach, only to be confident [when teaching]". No further explanation (on what was meant by 'competitive') was extracted from the focus group discussion. The training of the peer educators with a continuing supporting role by the trainers is one of the most important factors in the future success of a peer education program (Campbell & Foulis, 2002). The peer educators are trained using various teaching methods, which they themselves will reproduce when teaching their fellow peers. If didactic methods are used to teach the peer educators instead of incorporating drama and other interactive methods, peer educators will likely only use didactic methods to teach their peers as no other methods have been taught to them.

The peer educators said that they would also like to see other topics incorporated in the training session, for example a greater emphasis placed on how to communicate to their peers and make them feel at ease. One peer educator said, "I would like to know more about how to avoid being in risky situations"; alongside this comment another peer educator said:

> "it is hard being a girl and having to say no, if we don't want to have sex. We would like ways of how to say no".

Among the peer educator focus group, there was a feeling that they are presented with an overwhelming amount of material in a short period of time. One peer educator said that she:

> "[has] to keep on looking up lots of information in different books to answer all of the questions asked [by the students]".

Peer educators in Mongolia are trained for 3 days. Since it is generally the first time that they are exposed to topics of sexual health; they felt that they needed more time to grasp all of the information presented to them. This was not unanimously shared among the peer educators in the semi-structured interview. There was a split amongst those that felt that 3 days was enough. At present, the first day of the peer educator training session is oriented towards explaining reproductive anatomy and physiology. However, all felt that they would like more brochures, handouts and a more in-depth training manual. One peer educator felt that she would like to be involved with the training process. She felt that in particular, the peer education training process "conflicted with our exam schedule". In contrast, the key informant focus group all said that the peer education training was excellent.

Suggestions for Improvement

Both the student and peer educator focus groups, voiced a need for a gender separation when discussing sexual health. One student said, "I feel self-conscious with boys in the class" and another peer educator said, "it is hard to talk to boys and girls together". There was unanimous agreement amongst girls that there should be a boy and

girl split when discussing sexual matters. The boy focus group did not echo this sentiment and thus they did not bring it forth in the discussion. The call for a gender separation could perhaps be indicative of the cultural differences among the sexes. It was noted earlier that women are not encouraged to learn about sexual health. The peer education program could serve as a stepping stone for females to gain confidence in asking questions and learn the value of being knowledgeable in this area.

The need for improvement of teaching methods by the peer educators was also expressed by the students in general. They would like the peer educators to draw more examples, include different topics, to cover a variety of issues, including family and dating, as well frequent live performances.

> "Instead of talking always, couldn't they show it in a play? Last year we had a group of Art College students did a play for us. That made perfect sense of us."

The students would like to have better access to peer educators outside of class time. One student said, "it would be nice if there is a peer education club at school", another student also wanted to have greater access to peer educators out of class time, "if educators had extra time to work with students individually". Peer educators said that they would like improved teaching methods. One educator said, "we would like to make the session more interesting, by adding jokes or fun times". Another educator said, "we don't have sufficient material to which to teach our peers with".

Students and peer educators generally felt that the school administration should do a better job in supporting the peer educators. It was suggested to have more frequent workshops with the school staff and trainers, to keep in constant contact with the trainers, to keep in contact with other peer educators from different schools, and to have the

opportunity to get to know these other peer educators. One peer educator said, "educators need to know each other well in case we need help". Another peer educator said:

> "we need a lot of follow-up. We are trained and then they stop. We need more information also from principle people. It is hard to keep on being excited about teaching reproductive health, if there is no one to ask us how it is going and no-follow-up from the trainers".

Summary of the Chapter

The socio-cultural environment of a Mongolian society includes traditional values about sex, including promiscuity and embarrassment associated with discussing sex openly. The findings presented by the qualitative arm of the study demonstrate that more work is needed to address the influence that traditional values have on students', teachers' and health staff comfort level when discussing sex. From the start, the training session is mostly directed towards discussing anatomy and physiology of reproductive organs. Students are not taught non-didactic methods for teaching their fellow peers. Once the students are trained as peer educators they are subject to 'ridicule' from their classmates, because discussing sexuality in the classroom is still considered taboo in Mongolian society. In order for the peer education program to be more effective, traditional norms need to be addressed, including the role of drinking and the role of females in society.

REFERENCES

Bandura, A. (1977). *Social Learning Theory*. Prentice-Hall, New Jersey. 194-213.

Campbell, C & Jovchelovitch, S (2000). Health, Community and Development: Toward a Social Psychology of Participation. *Journal of Community and Applied Social Psychology* 10, 255-270.

Campbell, C & Foulis. (2002). Creating Contexts that Support Youth-Led HIV Prevention in Schools. *Society in Transition* 33, 312-329.

Campbell, C & MacPhail, C (2002). Peer Education, gender and the development of critical consciousness: participatory HIV prevention by South African youth. *Social Science & Medicine* 55, 331-345.

Hope, K.R. (2003). Promoting Behavior Change in Bostwana: An Assessment of the Peer Education HIV/AIDS Prevention Program at the Workplace. *Journal of Health Communications* 8, 267-281.

Milburn, K & Watson, S (2000). Understanding peer education: insights from a process evaluation. *Health Education Research* 15, 85-96.

NCHD & UNFPA (2001). *Unwanted Pregnancies and Abortions in Mongolia*. Ulaanbaatar, Mongolia.

Ocheieng, B. M (2003). Adolescent Health Promotion: The Value of Being a Peer Leader in a Health Education/Promotion Peer Education Programme. *Health Education Journal* 62, 61-72.

Roberts, A. (2001). *A description of the socio-cultural context of sexual health in Ulaanbaatar, Mongolia for a school-based peer education program*. Masters Thesis, University of Alberta, Edmonton, Alberta.

Roberts, A. B, Oyun, C, Batnasan, E, Laing, L (2005).Exploring the Social and Cultural Context of Sexual Health for Young People in Mongolia: Implications for Health Promotion. *Social Science & Medicine* 60, 1487-1498.

UNDP (1998). *Assessment on Alcoholism in Mongolia*. Government of Mongolia and UNDP Mongolia. Ulaanbaatar, Mongolia.

UNFPA, GTZ RH project, Population Teaching and Research Center, Margaret Sanger Center International, Ministry of Science, Technology, Education and Culture, Ministry of Health (1999). *Knowledge, Attitudes and Practices Related to Reproductive Health and Sexuality of Students in Mongolia: 1999 Baseline Survey*. Ulaanbaatar, Mongolia.

Wolf, R.C., Tawfik, L.A. & Bond, K.C. (2000). Peer Promotion Programs and Social Networks in Ghana: Methods for Monitoring and Evaluating AIDS Prevention and Reproductive Health Programs among Adolescents and Youth Adults. *Journal of Health Communications* 5, 61-80.

CHAPTER 5 – Conclusions and Recommendations

This chapter highlights the conclusions and recommendations. It also provides recommendations and future directions for the peer education program in Mongolia.

Conclusions

By conducting the evaluation of the peer education program in schools in Mongolia, much needed information was processed in order to reach out to adolescents in regards to their sexual health knowledge, attitudes and behavior. Through the KAP survey administration it was found that education as a prevention method is necessary in order to stop the HIV/AIDS pandemic. A sexual health peer education program in secondary schools was demonstrated to increase adolescent's knowledge, attitudes and self-efficacy regarding STIs and HIV/AIDS. However, safe sex practices were not statistically significant. A large number of adolescents (relative to those who are sexually active) were not consistently using condoms when engaging in sexual intercourse. This could be in part, because Mongolian culture is still becoming accustomed to the idea of discussing sexuality. Even though it may be taken for granted in many parts of the western world, discussing sexual health comfortably in a school setting, let along with parents is not routinely done in Mongolia.

From the qualitative arm of the study it was found that the peer education program in the schools tended to take a biological approach, focusing mainly on the types of sexually transmitted diseases and their symptoms. The peer educator trainers used mainly didactic methods, focusing on reproductive anatomy and physiology and the

existence of STIs. Thus, the lack of emphasis in the training session placed on decision-making and condom use was evident from the KAP survey results.

The state of Mongolian society in social, economic, and political transition has been discussed. It seems apparent that there has been, and still needs to be, further changes in relation to the promotion of sexual health. Earlier work by Roberts et al. (2005) has identified the existence of 'traditional values" in Mongolia that make discussions of sex taboo. As a result of the reluctance to discuss sexual topics openly, there has been noted embarrassment around the subject (Roberts et al. 2005). Embarrassment has been shown to be a major barrier to communication and education about sexual matters. The limitations on communication about sexual matters directly impacts efforts to promote sexual health. The embarrassment and discomfort with the topic affects heath professionals, teachers and students alike. In order for the peer education program to be more effective and have a positive change in behavioral practices, students, teachers and health professionals need to become more comfortable discussing condom use and its importance their sexual health.

Recommendations

The quantitative arm of the study shows effectiveness of the peer education programs, therefore

1) We recommend broader implementation of the program
2) Further research on why 1-2 PE were more effective and whether the expansion of the program should focus on implementation methods with small number of peer education

3) We also found that an irregular lesson plan for peer education classes is favored over a more structured systematic approach. We recommend further research and the peer educator trainers and health staff address this issue when teaching the students how to educate their fellow peers.
4) Randomization of schools when introducing the peer education program. This will help to determine the actual effectiveness of the peer education program in the future; because it will avoid biases by targeting only GTZ implementing areas.
5) Another evaluation in 2-3 years to assess the long-term impact of the sexual health peer education program.

In summary, results from the quantitative arm of the study show that the peer education program is having a positive impact and therefore it should be maintained. Effects appear limited to knowledge, attitudes and self-efficacy, so the program needs to be reviewed in order to determine how behavior could be impacted.

There is a need for documenting and sharing the positive and negative experiences of youth peer education programmes with many arguing that lack of understanding for the reasons of program successes and failures means that programs often repeat the same mistakes. The second set of recommendations is based on what was learned from the research process as well as from the qualitative data. It is directed at what improvements should be considered for the longevity and quality of the peer education program.

1. At present, the peer educators are trained for 3 days. It is perhaps not enough time to educate peer educators in the area of sexual health. However, if 3 days is

sustained, then it is necessary to have continuous follow-up with the peer educators and the key stakeholders at each school. This will allow the peer educators to have a social network to which they can feel comfortable asking questions and verifying teaching methods. The key informants also need to be included in the follow-up, as they are the ones in charge of the program at each school. It is important that they ascertain the relevance of the program content for adolescents.

2. It is imperative that the school principal and key stakeholders (including relevant school officials) be included from the beginning of the training process. They need to feel included and as if the program belongs to the peer educators and the school and not to DMS. Once DMS trains the peer educators, it should fall in the hands of the peer educators and school body. DMS and GTZ can be available as a resource. Having a sense of ownership, will encourage the peer educators and key stakeholders to enhance and enrich the program.
3. It is also important that more than one representative from each school be invited to attend the peer education training workshops. There seems to be frequent shifting of doctors and teachers from school to school in Mongolia and thus if only one person is in charge and they leave the school, no one is left who is familiar with the program.
4. Also at present, only school doctors are sometimes included in the training workshop. Teachers (especially biology or chemistry teachers) are the ones allocating class time, thus allowing the peer educators to teach. If the teachers are not involved from the beginning, they may not be motivated to promote the

program. There appears to be a need to encourage 'jurisdicational sharing' between school doctors and teachers, particularly in regard to health education in schools.

5. The school directors should be encouraged to become involved in the program training. School directors' involvement could promote a greater commitment to the success and longevity of the program.
6. The content of the training sessions should be reviewed with the peer educators. It appears that there is an over emphasis on reproductive anatomy and physiology. There seems to be a need for a broader range of subject matter to be addressed. Peer educators should be mostly concentrating on sexual matters.
7. The format of peer education presentation methods should also be reviewed. There appears to be a desire to incorporate more non-didactic teaching methods. Alternate methods may include role-play, dramas and interactive teaching methods. Having a variation of teaching methods will allow the information to be processed in an easier and more effective manner than just through lecturing. It would be helpful if the peer educators met on a regular basis with their trainers and received information for distribution and for students to take home.
8. Continuous and regular follow-up with peer educators is needed. Directors, the key stakeholders at the school and the peer educators need to feel that they own the program and that the trainers are there for backup. Having a well-sustained program that involves the key players at all stages is crucial for longevity and success of a program.

9. There needs to be a greater emphasis placed on teaching decision-making and how to avoid high-risk situations. Especially important, is condom use and the role that drinking places in making the wrong choices. Peer educators need to expand their teaching content to include these topics.
10. Whether the peer educators that are chosen are the most appropriate-needs to be explored further. Should there be a wider range of selection for peers to identify with?

Future Directions

Evaluations are important, because they are means of discovering the achievements of a program, as well as provide feedback on the program's success and failures (Advocates for Youth, 2002). This study is important because the results obtained from the evaluation can be utilized by both schools that have and do not have the peer education program. Improving sexual health knowledge, attitudes and behaviors may lessen the incidence of STIs and HIV/AIDS in Mongolia.

The working documents associated with this study will be shared with DMS and GTZ. It is the hope that the schools in Mongolia will benefit from the results of this study, as well as the peer educators, and health staff participating in the school programs.

REFERENCES

Advocates for Youth. (2002). Chapter VII. Evaluating the Peer Education Program. Guide to Implementing Teen for AID Prevention (TAP): A Peer Education Program to Prevent HIV and STI. 2nd ed. Washington, USA.

Roberts, A. B, Oyun, C, Batnasan, E, Laing, L (2005).Exploring the Social and Cultural Context of Sexual Health for Young People in Mongolia: Implications for Health Promotion. *Social Science & Medicine* 60, 1487-1498.

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Chapter Overview

The purpose of this appendix is to provide a detailed description of the methods used in the two-armed methodological study. The appendix is divided into two sections in accordance with the two aims of this thesis. The first section describes the methodology behind investigating the knowledge, attitudes and practices of grade 10 students from schools with the peer education program compared to students in schools without the peer education program in Mongolia. The second section presents the qualitative methodology in order to assess the strengths and weaknesses of the peer education program in Mongolia.

Study Design

The multi-method evaluation study consisted of both quantitative and qualitative components. The quantitative study used a self-administered questionnaire to evaluate the effectiveness of the peer education program. As suggested by Okonofua et al. (2003) and UNFPA et al. (1999), to evaluate the impact of a program in terms of adolescent knowledge, attitudes and practices the following outcomes among youths should be assessed: (1) knowledge of STDs (2) sexual norms, including sexual activity and (3) condom and contraceptive use. The data gathered from the questionnaire survey were compared to the qualitative arm of the study. The qualitative arm provided an overview on how the peer education program can be strengthened or improved. The questions targeted certain logistical factors of relevance to the program, as well as suggestions for improvement. Most evaluations of peer education programs have focused primarily on quantitative methods and missed important behavioral indicators that can be obtained by

using a qualitative approach (Wolf et al, 2000). Given the importance of the peer relationship among youth (when forming ideas regarding sexuality), it was felt that focus groups would produce more comprehensive information and offer a broader perspective about the strengths and weaknesses of the peer education program. A qualitative design has the strength that it is inductive, while a quantitative is deductive; allowing studies to develop deeper understandings capturing human perspectives (Meloy, 1994). The best information for evaluations can often be gathered by using focus groups and surveys together (Procter, 1997). Surveys can provide quantitative information and focus groups can provide qualitative data that penetrates more in-depth.

Quantitative Method

Subject and Inclusion Criteria

Subject and inclusion criteria included adolescents between 15 to 19 years of age; corresponding to Gr. 10 students in Mongolia. The students participating in the survey attended schools in: Ulaanbaatar; Nalaikh and Baganuur districts; Dzuunmod (Tuv Aimag); Mandalgovi (Middle Gobi Aimag) and Dalandzadgad (South Gobi Aimag). Adolescents that have and have not received peer education were included. Adolescents who were less than 15 years of age were excluded based on the assumption that they were not exposed to the peer education program for a period of three years (since the program was first piloted in 2001). At present (2004/2005) only grade 10 students have participated in the peer education program for three years. This is because when the peer education program was first introduced it in 2001, grade 7 peer educators were trained.

At present these peer educators are in grade 10. At each respective school they have not re-trained more peer educators from younger grades. In the initial pilot program, the researcher Roberts et al. (2005) from the University of Alberta had a target age of 15-17 years. The target age group chosen for this research study is relatively the same age group. The peer educators were excluded from participating in the survey, because the purpose of this research component was to evaluate the students receiving the intervention on knowledge, attitudes and practices, since the implementation of the program.

Sample

The study sample consisted of adolescents ages 15-19 (corresponding to grade 10) from secondary schools in Mongolia. Eight schools that have the peer education program and 8 schools that do not have the peer education program were chosen. In order to select the 8 schools with the peer education program, discussions were held with health officials from DMS and GTZ. The capital city (Ulaanbaatar), two districts of the city (Nalaikh and Baganuur) and 3 provinces (Tuv Aimag, Middle Gobi Aimag, and South Gobi Aimag) were chosen so that there could be a comparison between urban schools and rural schools. Ulaanbaatar schools were the only schools considered to be urban; the 2 districts, each located 45 minutes from Ulaanbaatar (in opposite directions) were considered to be rural, as well as the 3 provinces. Dzuunmod was chosen because it is the next biggest city in Mongolia (after Ulaanbaatar), yet still considered rural. Mandalgovi was chosen because it is the central aimag between Dzuunmod and Dalandzadgad. Both Dzuunmod and Dalanzadgad are central aimags that have the peer

education program in some of their schools, whereas Mandalgovi does not have a single school with the peer education program.

Schools with the peer education program in Mongolia are located in areas where GTZ had sustainable development units already in place (mostly rural areas which tend to be underserved and lack health personnel). They are chosen as sites for the school education program because communication has already been established between the community and GTZ and thus it is logistically easier for GTZ. Out of the 16 schools that had the peer education program for 3 years, we selected 9 schools on the basis of geographic diversity and travel logistics, one of which declined participation because of scheduling difficulties. We used a map to determine the geographical location of the schools. Also, the criteria for choosing a school with the peer education program was that it should frequency match to those schools without the program on the basis of school size, class size and urban or rural setting.

In order to select which schools (with no peer education program) to include, information was gathered from the Ministry of Education in Mongolia. A list of all the schools in Ulaanbaatar, Nalaikh and Baganuur district, Tuv Aimag, Middle Gobi Aimag and South Gobi Aimag was obtained. The list gave the school size as well as the number of students in grade 10. Schools that did not have the program were chosen to match a particular school that had the peer education program, with specific reference to; school population and Gr. 10 class size. As well, non-peer education schools were chosen by map so that they were not too close in geographical proximity with schools that had the peer education program; this was necessary in order to avoid contamination of the intervention.

To compare these two groups as categorical variables, a sample size of 300 in each group (a total of 600) was chosen in order to detect a difference in response with a frequency of 10% with margins of +6% and -6%. This sample size allowed us to detect a difference for two points, response rate of 10% with a power of study difference of 4% or 16% in control group. However, in the case that did not reach our goal sample size, 720 students (45 from each school) were randomly chosen to complete the questionnaire; of which 647 responded.

A preliminary meeting with the principal and school staff (doctors and headmasters) was necessary in order explain the purpose of the survey administration and to determine whether or not they were willing to participate. A second meeting with the doctors and headmasters was held in order to obtain a list of all of the students in grade 10. At this meeting (since it was already known that they were willing to participate) a short interview was conducted to obtain more information about each respective school. Once the class list was obtained, a random number table was used to randomly select 45 students from each school to participate in the survey administration. The list was given back to the headmasters or doctors with the 45 highlighted student names. The researcher discussed student participation with the doctor and/ or headmaster, whereby explaining clearly the importance of voluntary student participation (to avoid coercion). A date was set for survey administration. The survey was administered in the school, but out of class hours.

To carryout this research study, approval by the Mongolian Ministry of Education and the Mongolian Ministry of Health was needed for the participating schools. Information sheets were also provided to the principals at participating schools before

any data collection took place in order to make sure that all involved administrative bodies were aware of the research study.

Data Collection/Instruments

Before data collection took place, the researcher met with each principal and conducted a short interview to gather more facts about each respective school. The questions asked were as follows:

1. What percentage of children attending the school, are from the Ger District?
2. What is the ratio of teachers to students?
3. Are there health clinics nearby?
4. Has this particular school been adopted by any international organization, such as UNFPA?
5. Is there a doctor at this school?
6. How many hours per week do the students participate in peer education classes (only schools with the peer education program)

(1) The first question asked by the researcher was an important marker for SES. Ger districts are considered socioeconomic disadvantaged areas, generally located on the outskirts of cities. This question served as an indicator to compare SES among the adolescents surveyed. (2) The second question, the ratio of teachers to students gave an idea of how big the classes were and thus, in what class size the peer education program would be the most effective (3) The third question was included in order to investigate if it was important to have a health clinic nearby in regards to safe sexual practices. It was posited by DMS and GTZ staff that health clinics are areas where students can obtain

condoms and more information on sexual health. (4) The purpose of the fourth question was to assess whether the program worked in each school due to sexual health peer education classes, or if there was another reason behind the success of the program. For instance, if a sexual health international organization such as The Margaret Sanger (a reproductive health) organization was significantly involved in the school, the knowledge, attitudes and behaviors of the students could perhaps be a result of the organizations' influence. This question was included in order to reduce biases and to avoid contamination of results. (5) The fifth question was included to investigate if doctors play a role in increasing the sexual health knowledge, attitudes or practices of students. Doctors' roles need to be further evaluated in the socio-cultural context. Through discussions with GTZ members, the researcher learned that doctors in Mongolia tend to monopolize power in the area of health. In the schools they are regarded very favorably by the school staff, but not by the students; especially because the girls are afraid of the mandatory yearly gynecological examinations that they must succumb to (Frattola-Gebhardt, P, Personal Communication, September 13, 2004). Also, in the study by Roberts et al. (2005), it was noted that doctors are the gate keepers to health information. (6) The sixth question was necessary in order to obtain information about time effectiveness. It is important to know the number of hours that makes the peer education program the most effective in improving sexual health knowledge, attitudes and practices among adolescents.

It has been documented that schools are a common location for adolescent surveys (Okonofua, et al, 2003). Before the questionnaire was administered to study participants, students were briefed by the researcher and a young health professional

from DMS (fluent in both English and Mongolian) acting as a translator. The content of the survey was discussed, section by section and it was emphasized that student participation was voluntary and that they could withdraw at anytime. Approximately 1 ½ hours was dedicated to each school visit. It was important to ensure confidentiality, thus the questionnaires were completed in the schools, in the hope of obtaining ccurate and valid responses. It has been noted that sexual health education is a sensitive and sometimes controversial topic (McKay, 2000). Therefore, only the researcher and the DMS health professional were present during the survey administration. The questionnaire was administered after school hours and students were separated from each other (one desk in between) to ensure confidentiality of responses.

The questionnaire itself was in Mongolian (since it is an instrument already developed and used) and the students' answers were in Mongolian. A few questions were added to the existing KAP questionnaire. A section on sexual practices was added as well as a section on self-efficacy. Once the revised questionnaire was formulated, it was pre-tested with five adolescents in the same target age group that had not heard of the peer education program. The answers were then translated back into English for analysis. After the initial pre-test, it was found that the self-efficacy questions were confusing to the adolescents. Thus, the questions were re-visited and made simpler. A second pre-test was held with 5 different adolescents in the same target age group. The fact that the researcher does not speak Mongolian and that the students did not speak English was a limitation.

The quantitative data collection included a Knowledge, Attitudes, Practices (KAP) survey that had been used in Mongolia in 2002 (GTZ, NCHD et al, 2002).

Although, it has not been used specifically to evaluate the peer education program, it is a validated tool in the Mongolian population and thus it allowed a comparison of these study results with the results done from previous surveys. It asked questions pertaining to:

- Demographic information about the student, including: gender, age and residence area (aimag and soum), school number and grade.
- Knowledge of STIs, knowledge of symptoms and of transmission, knowledge of potential risk groups and of prevention methods. Also included, was the respondents most commons sources of knowledge.
- Attitudes towards: age of first sexual intercourse; factors that contribute to decisions for having sexual intercourse; using a condom; gender responsible for obtaining preventative methods; and seeking medical treatment for STIs, if needed.
- The Mongolian KAP survey did not contain questions regarding current adolescent practices. This section was incorporated to the survey; and it included questions related to current sexual activity: use of a condom during last sexual intercourse; use of a condom on a regular basis; first sexual intercourse; and the use of condom during first sexual intercourse. These practice questions had already been validated in other studies (Wolf et al., 2000; Okonofua et al. 2003; Sawyer & Pinciaro, 1997; Gokengin et al, 2003).
- Questions about the peer education program, including reliable source for obtaining information, what respondents think about peer

educators, and a section for a students' opinion for improving peer education quality.

- Questions about self-efficacy were added to the existing questionnaires (i.e. refusing sexual intercourse, communication with parties about sexual health topics and using condoms). Self-efficacy is thought to be a rationale or component of peer education. The questions added had already been used validated in another study (Cecil & Pinkerton, 1998).

Data Analysis

The data were first analyzed by descriptive statistics. Cross-tabs were compared. Following preliminary statistical assessment, the data were analyzed according to multilevel regression methods in order to examine the effects of a peer education program and school factors on the following outcomes: knowledge, attitude, self-efficacy and practice. We considered the peer education program and school factors as contextual factors and treated both as second-level covariates. Knowledge, attitude and self-efficacy were treated as first-level outcomes in the multilevel linear regression. To facilitate interpretation of our findings, we exponentiated the resulting beta coefficients to represent "relative increments" or "relative risks" of the peer education program and school factors associated with a 10% increment in the knowledge, attitude, self-efficacy and practice score. Practice was considered a first-level binary outcome in the multilevel logistic regression analysis, for which we calculated odds ratios and 95% confidence intervals. All analyses were adjusted for age and gender that were considered as first-level confounders.

Qualitative Method

Subjects and Inclusion criteria

Subject and inclusion criteria for this first study sample included adolescents between 15-19 years of age (corresponding to grade 10 students) enrolled in secondary school, who had been part of the peer education program for three years, in Ulaanbaatar, Mongolia. Adolescents that had not received the peer education program were excluded, because the goal of this study was to probe further into the knowledge learned as a result of the peer education program. The second study sample consisted of key informants (teachers, social workers and doctors) who were overseeing the peer education program at each school and thus were familiar with its content. They consisted of a group of diverse individuals who were familiar with the intervention. The third group of subjects studied was the peer educators. By conducting focus group discussions with: the students receiving the information, those students delivering the information and the individuals overseeing the intervention; information on how the program had been delivered, respective strengths and weaknesses of the program and at the same time, a wide range of opinions about the peer education program was gathered. This is important because a limitation of the study is whether or not the difference obtained by the quantitative design, was due to the intervention or due to other factors. Therefore, how the intervention was delivered is a key component of the research study.

The second sub-component of the qualitative study consisted of semi-structured interviews with the peer educators from schools in South Gobi. It was difficult to conduct focus group discussions among these students due to their distant location and lack of a qualitative research team.

Sample

The first study sample consisted of (7 female and 8 male) adolescents from Gr. 10, attending secondary schools in Ulaanbaatar, Mongolia. Two schools in Ulaanbaatar (school 4 and school 15) were chosen after consultation with DMS and GTZ. These schools were chosen because they were the most cooperative during the KAP survey administration. The students volunteered to participate. During the distribution of the KAP survey, the researcher explained the qualitative component of the research project and asked the students that if they were interested in participating in a focus group discussion they could inform the individual in charge of the peer education program at their school. As such, purposeful sampling was utilized to choose the sample. "Cases that are information rich and illuminative…will provide appropriate data given the evaluation's purpose" (UMichigan online: www.wmich.edu/evalctr/checklists/quec/checkpoint2.htm, 2004). That is, sampling aimed at generating insights into key evaluation issues and program effectiveness, not just empirical generalizations from a sample to a population, was used (UMichigan online: www.wmich.edu/evalctr/checklists/quec/checkpoint2.htm 2004). The second sample consisted of key informants who were currently in charge of the peer education program at their respective schools. This sample was acquired through discussion (during the time of the KAP survey collection) and then by asking if they would participate. The third sample participating in the focus groups were the peer educators. By including key informants and peer educators in the focus group discussions, a broader perspective on the peer education program was obtained; in addition to the information gathered from

the quantitative design. The peer educators involved in the focus group discussion were from schools 4 and 15.

It has been recommended that focus groups be limited to 6-8 people, in order for the researcher to have more time to probe and be more insightful towards the participants' discussion (Kreuger & Casey, 2000; Roberts et al 2005). Therefore in total, each focus group consisted of one moderator, a recorder/observer, a transcriber, and 6-8 students. All student focus groups were gender specific. Focus groups conducted on the issue of sexual health are commonly single-sex groups (Stephenson & Obasi, 2003). In total, 4 focus groups were conducted, two with students (gender separated) from schools with the peer education program, 1 focus group with peer educators and 1 focus group with key informants involved with the program.

Focus group discussions were done at a location that was away from the school, thus the focus groups were conducted at the DMS office building. Students were offered compensation for participating in the focus groups. After volunteering to be in the focus group, they were told that they would obtain a 'reward', but not the content of the reward (the amount of money was determined in accordance with Mongolian affiliates). The reward was the equivalent of bus fare.

Peer educator focus groups also consisted of 6-8 students. Purposeful sampling was utilized to select the peer educators and they also needed to fill out consent forms before participating. In order to follow the same process utilized by Roberts et al (2005), peer educator focus groups took place at the DMS office building. As with the students, peer educators received a reward. Key informant focus groups involving 6-8 key informants also took place at the DMS office building. Information and consent forms

were given and participants also obtained a reward. Information sheets were also provided to the principals at participating schools before any qualitative data collection took place.

The semi-structured interviews were done with the peer educators from South Gobi Aimag. There were two interview sessions, one at each of the schools surveyed. When the surveys were administered, peer educators were taken aside and told about the research project. They were given a consent form and asked if they would like to participate in the interview. The interview was done out of school hours, but unfortunately due to lack of free space in South Gobi Aimag, the interviews were conducted at each of the schools. To ensure privacy the interviews took place in a closed classroom where the educators would not be disrupted by people walking in.

Research Group

The research group consisted of a moderator, an observer who was also the transcriber and the primary researcher. The Mongolian moderator was less than 30 years of age. She was knowledgeable in the subject matter and helped the researcher with all of the data collection. The moderator was interviewed to make sure that she was at ease when conversing with students, had good communication skills, made sure that she was fluent in English and had experience in the role of focus group moderator. When she was hired, she received an interview guide and met with the researcher several times to receive all of the relevant information on the research topic. However, as revealed by the information from the transcripts it was evident that even though she had experience as a

focus group moderator she did not probe enough to obtain in-depth answers. Local research partners were consulted about the interview guide.

The observer was present to take notes of mostly nonverbal communication, such as facial expressions and to take notes to facilitate her transcription of the discussion. She was fluent in English and thus also aided in keeping the researcher informed as to what was occurring. For the male student focus group, a male observer was also present. This was to ensure that the male students would feel more comfortable discussing sexual health issues. The transcriber, who was also the observer was present at the focus group session. During the piloting of the peer education program in Mongolia, it was noted that discussions even though they were audio-taped, were difficult to understand and so the aid of the transcriber was very helpful (Roberts, 2001). The researcher kept a journal of observations for additional data. The translation has a potential to be a limitation of the qualitative design and thus a research group fluent in English was essential.

A training session (consisting of one afternoon) was necessary to gather the research team in order to discuss the purpose and relevance of the qualitative design. Before the actual focus group discussions took place, the question guide was piloted to 6-8 adolescents in the same age group to: verify the quality of the translation, to ensure the research team worked together smoothly and that the questions were understandable, as well as to see if additional questions needed to be incorporated.

Interview Questions

A focus group allows the moderator to provide feedback on the content of the research questions. According to Rothe (2000) "probes or follow-up questions [are used]

to obtain further information, to clarify answers already given, to complete incomplete accounts…probes are contingency questions we use to delve deeper into a particular answer". Therefore, by using probes, the moderator could repeat the question, use a neutral comment or question or request an example for clarification (Rothe, 2000). Moderating can be difficult if the moderator is not experienced and even then, problems may still arise. Due to the dilemma that the researcher does not speak Mongolia, she had to work closely with the moderator, so that they had a clear understanding of the purpose and content of the research project. The researcher notified the moderator to be aware of culture specific subject matter when she was conducting the focus group. In the study by Roberts (2001) it was noted that since the Mongolian focus group moderators and participators were insiders to the culture, they already had a sense of what traditional values were and did not address some subjects directly; rather it became an overriding theme. Even though this was addressed with the moderator, the researcher feels that the questions and responses were not fully probed. It is likely that much more detailed information about the topic could have been obtained.

There are three basic ways of ordering questions-the funnel, the pyramid and the straight-line sequence (Rothe, 2002). For the focus groups in this study, a funnel approach was used. This same approach was used during the piloting of the peer education program and thus the researcher wanted to be consistent in the evaluation. The funnel interview strategy asks questions that progress from the general to the specific. This approach is well-suited for an evaluation because it can be used to change policies or programs that have already been implemented (in this case, the peer education program). It addresses specific concerns and expands them to the concerns and goals of

the particular program (Rothe, 1994). Also, as suggested by McNamara (1999), about 4-6 questions is appropriate for a focus group. Thus, 4-5 questions were asked at each focus group discussion.

To ensure accuracy, the question guide was piloted to verify the quality of translation and that the questions were comprehended by students. Four-Five students of the same age but in study schools were chosen to do a pilot run of the focus group questions; the piloting included the Mongolian research team.

Data Recording

Focus groups lasted from 1 to 1.5 hours to give enough time for discussion (McNamara, 1999). Students participating in the focus groups met at the meeting room in the Directorate of Medical Services (DMS) building. The information gathered from the discussion was recorded by using an audio-tape and then transcribed to paper. Audio-tapes were used because they allow full transcripts of the interview and they are also accessible for independent analysis (Polgar & Thomas, 2000). Two audio-tape recorders were used in case of mechanical faultiness. After focus group sessions were conducted, all data were compiled (tape, observer, researcher and transcriber notes) and then transcribed. The transcription process was from the tape recorder to the Mongolian language and then to the English language. The researcher kept the Mongolian tapes for verification purposes.

Data Verification

Firstly, the audio tape recorder was verified to make sure it worked. Secondly, audio recordings were spot checked by another member from the collaborating Mongolian party (who was also fluent in English); every second transcript, every 5 minutes. Thirdly, when the recordings were translated into English, they were cross-checked with the observations (now also in English) to fill in any deficiencies that the audio-recorder may not have picked up. Fourth, the presence of the transcriber at every focus group session enhanced reliability, as she was the one transcribing the data. Fifth, the researcher worked closely with the research group in order to make certain that the purpose of the project was met.

Data Analysis

The data were analyzed in a general way using the method outlined by Rothe (2002) as a basis.

Step 1: Reading of the entire transcript (surface analysis)

Step 2: Highlighting the key terms in each quote

Step 3: Categorizing key terms and defining themes

Step 4: Identify sub-themes found within each of them

Step 6: Extracting each sub-theme, incorporating it into each major theme and writing paragraph of the overall findings.

REFERENCES

Cecil, H & Pinkerton, S.D. (1998). Reliability and Validity of a Self-Efficacy Instrument for Protection Sexual Behaviors. *Journal of American College Health* 47, 113-121.

Krueger, R.A & Casey, M.A. (2000). *Focus Groups*. (3rd ed). Thousand Oaks. CA: Sage Publications Inc.

McKay, A. (2000). Common questions about sexual health education. *Sieccan Newsletter* 35, 129-137.

McNamara, C. (1999). Basics of Conducting Focus Groups. Management Assistance Program for Nonprofits Publication (online: http://www.mapnp.org/library/evaluatn/focusgrp.htm)

Meloy, J.M. (1994). *Writing the Qualitative Dissertation: Understanding by doing*. New Jersey: Lawrence Erlbaum Associates.

Okonofua, F.E., Coplan, P., Collins, S., Oronsaye, F., Ogunsakin, D., Ogonor, J.T., Kaufman, J.A., Heggenhougen, K. (2003). Impact of an intervention to improve treatment-seeking behavior and prevent sexually transmitted diseases among Nigerian Youths. *International Journal of Infectious Diseases* 7, 61-74.

Polgar, S & Thoms, S.A. (2000). *Introduction to Research in the Health Sciences*. 4th ed. Australia: Churchill Livingstone.

Roberts, A. (2001). *A description of the socio-cultural context of sexual health in Ulaanbaatar, Mongolia for a school-based peer education program*. Masters Thesis, University of Alberta, Edmonton.

Roberts, A., Oyun, E., Batnasaan, E., L.Laing (2005). Exploring the social and cultural context of sexual health for young people in Mongolia: Implications for Health Promotion. *Social Science & Medicine* 60, 1487-1498.

Rothe, J.P (1994). *Qualitative research: A how to manual for keeners*. Heidelberg, ON: RC1 Publications.

Rothe, J.P. (2000). *Undertaking Qualitative Research: Concepts and Cases in Injury, Health and Social life*. Edmonton, Alberta: The University of Alberta Press.

Rother, J.P. (2002). *Social Inquest: A Workbook on Qualitative Methods for Injury, Safety and Social Behavior*. Edmonton, Alberta: Lacuna Publishing Solutions.

Sawyer, RG, Pinciaro, P. (1997). How Peer Education Changed Peer Sexuality Educators' Self-Esteem, Personal Development, And Sexual Behavior. *Journal of American College Health* 45, 211-221.

UNFPA, GTZ RH Project, Population Teaching and Research Center, Margaret Sanger Center International, Ministry of Science, Technology, Education and Culture, Ministry of Health, (1999). *Knowledge, Attitudes and Practices Related to Reproductive Health and Sexuality of Students in Mongolia: 1999 Baseline Survey*. Ulaanbaatar, Mongolia.

Wolf, R.C., Tawfik L.A., Bond, K.C. (2000). Peer Promotion Programs and Social Networks in Ghana: Methods for Monitoring and Evaluating AIDS Prevention and Reproductive Health Programs Among Adolescents and Youth Adults. *Journal of Health Communications* 5, 61-80.

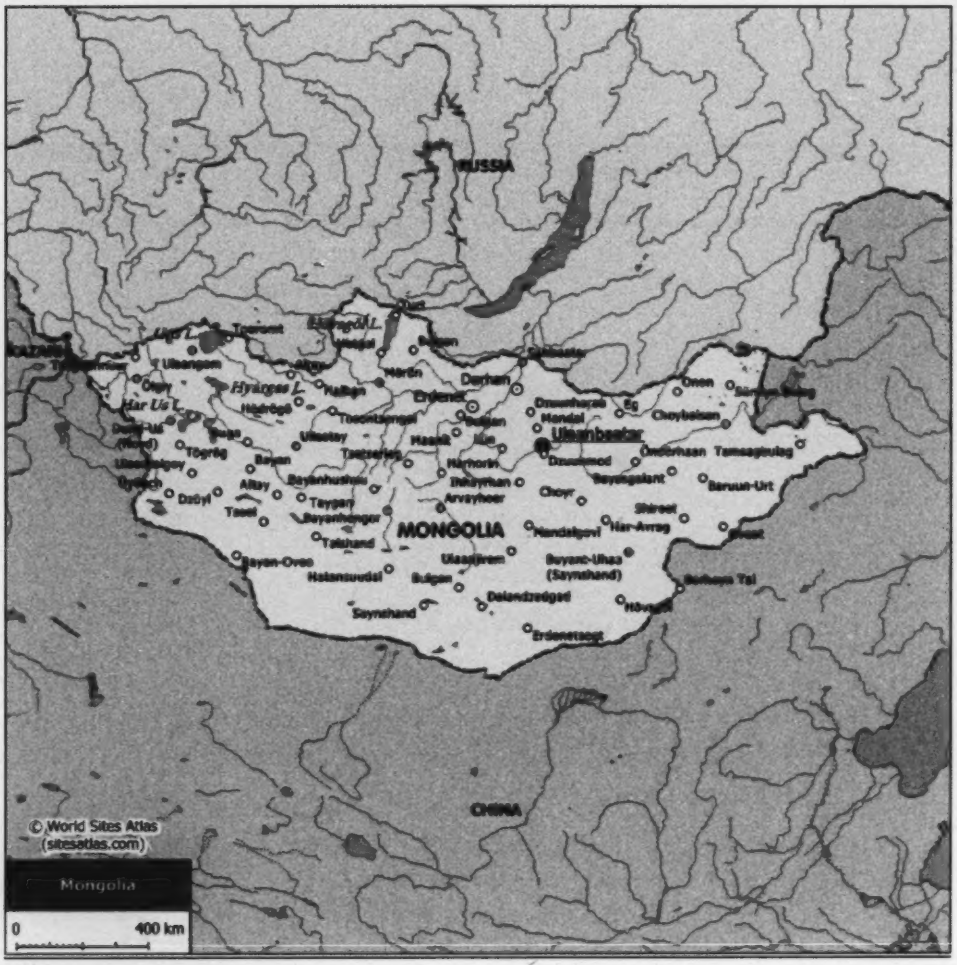

Fig A-1: Map of Mongolia

Ulaanbaatar (Khanuul and Soukhbaatar districts)
School 15 (Khanuul)
School 52
School 18 (Khanuul)
School 4
School 6 (Soukhbaatar)

Nalaikh District
School 99/100
Chandmana

Soukhbaatar Aimag
School 1
School 2

Selenge Aimag
School 1
School 2

Tuv Aimag
Khumuun
School 4

South Gobi Aimag
School 1
School 2
School 3

Fig A-2: Schools with Peer Education Program in Mongolia[1] (of which it still exists among Gr. 10 students)

[1] Highlighted schools were chosen to participate in the research project.

KAP Survey Administration

720 Students
16 Schools

Peer Education Program

8 Schools
45 Students from each school
360 Gr. 10 students randomly chosen
chosen

[redacted]

School	# of Students	Peer Educators
1	3200	1
	Gr.10-235	
3	1227	3
	Gr.10-127	

[redacted]

School	# of Students	Peer Educators
15	1248	4
	Gr.10-89	
4	1705	4
	Gr.10-120	
18 (29/45) 64.44%	1571	4
	Gr.10-87	

[redacted]

School	# of Students	Peer Educators
99/100	4766	4
	Gr.10-334	

[redacted]

School	# of Students	Peer Educators
Khumuun	3114	2
	Gr.10-300	
4	360	1
	Gr.10-25	

No Peer Education Program

8 Schools
45 Students from each school
360 Gr. 10 students randomly

[redacted]

School	# of Students	Peer Educators
1	1638	0
	Gr.10-272	
3	884	0
	Gr. 10-66	

[redacted]

School	# of Students	Peer Educators
19	1224	0
	Gr.10-78	
37	1701	0
	Gr.10-126	
14	1858	0
	Gr.10-116	

[redacted]

School	# of Students	Peer Educators
Bolovsrol	6253	0
	Gr.10-454	

[redacted]

School	# of Students	Peer Educators
2	1186	0
	Gr.10-135	
4	543	0
	Gr.10-53	

Fig A-3: KAP survey administration locations and school population information

APPENDIX B: STUDY INSTRUMENTS

QUANTITATIVE QUESTIONNAIRE

The Knowledge, Attitude and Practice (KAP) Survey to be used in this study is one that has been used in Mongolia in the past. It is a combination of the questions from previous KAP surveys used in Mongolia 2002, with the addition of practice and self-efficacy questions

KAP (KNOWLEDGE, ATTITUDE, PRACTISE) SURVEY ON SEXUAL HEALTH

Number of questionnaire _____Researcher's name_____

Aimag: 1_____

Soum: 2_____

(Please circle the number before the question)

School number [1]_____ Grade: 7, 8, 9th grade

1. Age_____ 2. Sex: a. male b. female

Knowledge questions

1. Which of the following diseases are sexually transmitted?

    a. Syphilis
    b. Chlamydia
    c. HIV
    d. Pneumonia
    e. Hepatitis B
    f. Gonorrhea
    g. Trichomonoiasis
    h. Gemorrea
    i. Don't know

2. Which of the following symptoms may be a result of a sexually transmittable infection?

    a. Secretion from urethra and vagina
    b. Ulcer, sore, vesicular around genital organs
    c. Vomiting
    d. Pain during sex
    e. Itching around genital organs
    f. Headache

g. Pain when urinating
h. Don't know

3. From which of the following people is it possible to contract a sexually transmitted infection?

   a. Commercial sex workers
   b. Infected persons
   c. Any person
   d. Other (please write)
   e. Don't know

4. Do you always have to show signs and symptoms of a sexually transmittable infection at an early stage?

   a. Yes
   b. No
   c. Don't know

5. Can you contract a sexually transmittable infection from the following actions?

   a. Shake hands
   b. Kissing
   c. Safe sex
   d. Unsafe sex
   e. Dirty needles
   f. Infected blood
   g. From mother to child
   h. Don't know

6. Is it possible to contract a sexually transmittable infection the first time you have sex?

   a. Yes
   b. Sometimes maybe
   c. No
   d. Don't know

7. What factor do you pay attention to when purchasing a condom?

   a. Unopened packet
   b. Expiration date
   c. Appearance/Condom package
   d. Country of origin
   e. Don't know

8. What are the advantages of condoms?

    a. Will prevent STI
    b. Will prevent unwanted pregnancy
    c. Didn't reduce sexual feeling
    d. Other (Please write)
    e. Don't know

9. Have you heard about contraceptive methods?

    a. Yes
    b. No *(If no skip to A)*
    c. Didn't answered

A. If heard about contraceptive methods, what methods do you know?

    1. Abstinence
    2. Calendar method
    3. Advise from doctor
    4. Take medicine
    5. Use condom
    6. Insertion of IUD (intrauterine contraceptive device)
    7. Depo-Provera (contraceptive injection)
    8. Washing
    9. Abortion
    10. Other (please write)

Attitude questions

1. What do you believe is the appropriate age for first sexual experience?

    a. Girl _____ years old
    b. Boys _____ years old
    c. It is different for every person
    d. Don't know

2. What factors may contribute to bad decisions in relation to sex?

    a. Alcohol
    b. Tobacco
    c. Emotion
    d. Depression
    e. Other (please write)
    f. Don't know

3. If a close friend talks to you about sex what do you think about that person?

   a. It is normal
   b. I think he or she has sex many times
   c. I think he or she hasn't got any experience
   d. I think maybe he or she is excited
   e. Other
   f. Don't know

4. If your sex partner suggests using a condom what do you think?

   a. Doesn't trust me
   b. Responsible person
   c. He or she has STI
   d. It is normal
   e. To prevent STI
   f. Don't know

5. Who do you think is more responsible regarding contraception?
   a. Girls
   b. Boys
   c. Both
   d. Don't know

6. What question will you ask yourself before you starting having sex?
   a. Think about goal of life
   b. Ready to become mother or father
   c. Have I got a condom?
   d. Can I use a condom correctly?
   e. Do I really love him or her?
   f. Other
   g. Don't know
   h. I don't ask myself any question

7. What sexually health issues are most important to you?

   a. Genital hygiene
   b. Faithfulness
   c. Close relationship (openness and frankness)
   d. Family planning
   e. Other (please write)
   f. Don't know

8. What is your opinion about having sex before marriage?

   a. I don't think it's wrong to have sex before marriage
   b. I think it is wrong to have sex before marriage
   c. Don't know

      A. If you don't think it is wrong, why?
         1
         2
         3

9. Who will you go to if you need to be treated for a sexually transmitted infection?

   a. Doctor
   b. Health Teachers
   c. Parents
   d. Peer educator
   e. Teachers
   f. Other (please write)
   g. Keep secret
   h. Don't know

Practice

1. Have you ever had sexual contact or intercourse?
   a. Yes
   1. No
   2. No Answer

Please answer the following questions only if you have had sexual intercourse

1. Age at first intercourse? _____

2. Number of partners?
   a. 1
   b. 2
   c. 3-5+

Condom Use

3. The last time you had sex, did you use a condom?

a. Yes
b. No

4. If in the past 3 months you have had sex, did you always use a condom with your casual partner?

a. Yes
b. No

5. During first sexual intercourse

a. Yes
b. No

6. During coerced sexual intercourse

a. Yes
b. No

Self-efficacy questions for peer education program

1. Refuse Sexual Intercourse

How sure are you that you would be able to say NO to having sexual intercourse in the following situations:

With someone you have known for a few days or LESS?
Very Sure Somewhat Sure Not Sure

With someone whose sex and drug history is not known to you?
Very Sure Somewhat Sure Not Sure

With someone you have dated for a long time?
Very Sure Somewhat Sure Not Sure

With someone you want to date again?
Very Sure Somewhat Sure Not Sure

With someone with whom you have already had sex?
Very Sure Somewhat Sure Not Sure

With someone who you want to fall in love with you?
Very Sure Somewhat Sure Not Sure

With someone who is pushing you to have sexual intercourse?
Very Sure Somewhat Sure Not Sure

2. Question Potential Sex Partners

How sure are you that you would be able to discuss each of the following with your boyfriend/girlfriend?

Discuss preventing AIDS or sexually transmitted diseases (syphilis, etc) or PREGNANCY with your boyfriend/girlfriend? Very Sure Somewhat Sure Not Sure

Ask your boyfriend/girlfriend about sexual relationships that he/she has had in the past?
Very Sure Somewhat Sure Not Sure

Ask your boyfriend/girlfriend if he/she has ever had a sexually transmitted disease?
Very Sure Somewhat Sure Not Sure

3. Condom Use
How sure are you that you would be able to perform each of the following?

Use a condom every time that you had sexual intercourse?
Very Sure Somewhat Sure Not Sure
Use a condom during sex after you have been drinking?
Very Sure Somewhat Sure Not Sure
Insist on using a condom during sex, even if your boyfriend/girlfriend does not want to use a condom?
Very Sure Somewhat Sure Not Sure
Refuse to have sex if your boyfriend/girlfriend will not use a condom?
Very Sure Somewhat Sure Not Sure
Get the money needed to buy condoms?
Very Sure Somewhat Sure Not Sure
Walk into a store and buy condoms?
Very Sure Somewhat Sure Not Sure

Questions about peer education training

1. Who is the most accurate and reliable source for sexually health information?

a. peer educator
b. health teacher
c. doctor
d. Friend
e. Older sibling
f. Other (please write)

2. What do you think about present level of peer education training, interview, consultation on sexual health?

a. It's OK
b. Needs to be improved
c. Needs to change
d. Don't know

3. Was the knowledge and information given to you by the peer educator?

a. Sufficient
b. Insufficient
c. Don't know

4. Have you received sufficient information in:

a. Anatomy/physiology of sexual organs	Yes	No
b. How to Prevent STI	Yes	No
c. Friendship/love/relationships	Yes	No
d. Transmission of STI	Yes	No
e. How to make good decisions when it comes to sex	Yes	No

5. Are you satisfied with the peer education program?

a. Yes
b. No
c. Somewhat satisfied

6. Is the information provided by the program relevant for your life?

a. Yes
b. No
c. Somewhat relevant

7. If no, what could be improved or changed?

_____
_____
_____

8. What channel is the most effective way for acceptable sexual health information?

a. Peer education training
b. Health education lesson
c. Radio
d. TV

e. Reproductive health newsletter (for example, Super, _____)
f. IEC material (information education communication)
g. Other
h. Don't know

9. What kinds of things are important for improving peer education training quality?

QUALITATIVE QUESTIONS

Qualitative questions were determined after discussion with Dr. Wolf Wagner, GTZ. GTZ provides the funding for the peer education program in Mongolia and so they were interested in finding out what were the perceptions of the students and of the peer educators. Specifically GTZ and DMS needed to know how to improve the program. Thus, the areas we focused upon were; the strengths and weaknesses of the program as well as suggestions for improvement.

Focus Group Questions

Students

1. What are some of the issues that face young people today, regarding sex and sexuality?

2. How has the peer education program helped you face any of these issues?

3. How do you feel about the peer educators?
    - Is the peer educator someone that you feel comfortable asking questions about your own sexual health? Why or why not?
    - Is the peer educator a role model that you feel has had an impact on your own sexual health? Why or why not?

4. Should the peer educators be doing/teaching anything different? If so, what?

5. How do you feel about your level of sexual health knowledge as a result of the peer education program?
    - Do you feel that you have an opportunity to increase your knowledge about sexual health as a result of the peer education program? If so, how?
    - Do you feel that this style of teaching has helped you to increase your knowledge about sexually transmitted infections and pregnancy? If so, how?
    - Do you feel that the information you received has prepared you for your future decisions? Why or why not?

6. Has the peer education program benefited you in any way?
    - Have you learned anything?
    - Changed your attitudes?
    - Changed your behavior?

Peer educators

1. What are the benefits of a peer-to-peer approach?
    - Any drawbacks?

- Do you feel that this style of teaching is an appropriate method for adolescent students to increase their knowledge about sexual health?
- To change their behaviors? How?

2. Do you think that students are more knowledgeable about sexual health as a result of the peer education program? What makes you think so?
   - Do you think that all students you have taught have had an opportunity to increase their knowledge about sexual health? Why or why not?
   - What have been the most positive changed you have seen in your peers' attitudes and practices since the introduction of the peer education program?
   - What have been some of the negative changes you have seen in your peers' attitudes and practices since the introduction of the peer education program?

3. How do you feel about the training you received when you became a peer educator?
   - How would you suggest that it be done differently?
   - The process?
   - The content?
   - Was the training adequate?
   - Do you feel that the material you received was sufficient to prepare you?

4. Did you face any difficulties by being a peer educator?
   - Did you encounter any situations that you felt were above and beyond your role as a peer educator? What kind of situations?

5. As a peer educator, what was the support like, in your school?
   - Did you feel that you had the support of the school?
   - Did you feel that you had the freedom to teach students about sexual health matters during the prescribed teaching slot?
   - Do you feel that the amount of time allocated for you to teach was sufficient?
   - What changes would you make in order to make the atmosphere more comfortable for your peers to listen to you?

6. How useful was it for you, to be a peer educator?
   - What did you like most about your role?
   - How important was it to you, to be a peer educator?
   - What is the most valuable thing that you have gained from this experience so far?
   - If you were given an opportunity to be a peer educator again, would you?

Key Informants

1. In your opinion, what kind of information is most valuable for adolescents?
2. How do you find that the peer education program addresses these issues?
3. Why did you decide to become involved with the peer education program?

4. Do you feel that the peer education program is successful (at your school)?
5. In your opinion what improvements can be made to the program to make it more successful?
6. In your opinion since the implementation of the program, do you find that there has been a change in the student level of their knowledge, attitude or behavior regarding sexual health?

FOCUS GROUP INTERVIEW GUIDE[2]

Welcome the participants and thank them for coming. After everyone is seated, begin the introductions.

Introductions:

- Introduce yourself as moderator and share some facts about yourself as well as some background experiences. Introduce the observer (co-moderator) and translator stating a few facts about their background
- Allow participants to introduce themselves, giving their name, age, and one fact about themselves (i.e. their favorite food)

Explain the role of the research team

- Moderator helps direct discussion to ensure all objectives of the focus group discussion are met
- Observer operates tape recorder and takes extra notes on the discussion.
- Translator briefly translates the focus group discussion to the observer since she does not speak Mongolia

State the study objectives of the project

- The focus group discussion must be done in order to determine what information has been learned by means of the peer education program.
- To identify knowledge (or lack thereof) on methods of prevention for STIs and pregnancy
- To identify attitudes with respect to treatment methods (if obtain an STI)
- To probe further and identify potential inconsistencies, in their knowledge, or contradictory understandings and attitudes with respect to STI prevention and pregnancy.

The focus group discussion will be last 1-1.5 hours

Explain that the discussion will be audio taped so that we can remember what was said. Remind students that everything that will be said at the discussion will be confidential. Also remind them that all of the material (final tapes and transcripts) will be kept in Canada and that themes and idea from the focus groups not direct comments will be presented in the final report.

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[2] Adapted from Roberts M, "A Description of the Socio-cultural context of Sexual Health in Ulaanbaatar, Mongolia for a School-based Peer Education Program" (thesis), 2001, University of Alberta & from Chacko, S, "Investigating Adolescent Perceptions of HIV Infections and Pregnancy Fort Portal, Uganda, Africa" (Thesis Proposal), 2003, University of Alberta.

Explain the ground rules to make everyone feel comfortable in the discussion, ensuring that comments are kept confidential and to make discussion go as smoothly as possible. Review the ground rules and concepts to participants (by writing them on the chalk board) and tell them to add new ground rules that they think are necessary.

1) Right to pass (not answer a question)
2) Respect other's opinions
3) Right to be heard (only one speaker at a time)
4) Agree to disagree in the discussion
5) Respect confidentiality of personal information (do not discuss it outside of the room)
6) There is no such thing as a stupid question.

Turn on the tape recorder

Do not use participants' names when asking questions. Follow the discussion guide and remember to keep the focus group objectives in mind. Also, probe enough to allow for exploration of important topics if they arise.

At the end of the 1-1.5 hours, review the main points of the discussion to clarify and recap what was discussed. Turn off the tape recorder.

Thank the participants for coming and that the moderator will pay them for their participation.

If time remains after question guide has been completed, tell students that they may ask informal question if they wish.

After the focus group discussion the research team should:

- Reflect on how the focus group session went and their overall impression
- Acknowledge what went well during the discussion for next time
- Acknowledge what can be improved to better prepare for next time
- The moderator and observer should make final notes alone and meet at a later date to compare notes and review data once more to write a final report.

QUALITATIVE STUDY

CONSENT FORM –Principals

Effectiveness of Sexual Health Peer Education Program for Secondary School Students

Principal Investigator:
Rosario G. Cartagena
Public Health Sciences
University of Alberta, Canada

Please answer the following questions by circling yes or no.

Do you understand that some of your students will be participating in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet?	Yes	No
Do you understand the benefits and risks involved in your students' taking part in this research study?	Yes	No
Have you had an opportunity to gain more information by asking questions and discussing the study?	Yes	No
Do you understand that your students are free to withdraw from the study at anytime for any reason and do not have to give a reason?	Yes	No
Do you understand the issue of confidentiality amongst the respondents? Do you understand who will have access to their records/information?	Yes	No
Do you understand who will have access to the data?	Yes	No

This study was explained to me by: _____
Date: _____

Principal
I agree to allow selected students from my school to take part in this research study

_____

Printed name of Principal Signature of Principal Date

Witness
I believe that this person signing this form understands clearly what is involved in the study and volunteer's consents to the participation of his or her students

_____

Signature of Investigator Printed Name Date

CONSENT FORM – Students

Effectiveness of Sexual Health Peer Education Program for Secondary School Students

Principal Investigator:
Rosario G. Cartagena
Public Health Sciences
University of Alberta, Canada

Please answer the following questions by circling yes or no.

Do you understand that you will be participating in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet?	Yes	No
Do you understand the benefits and risks involved in your students' taking part in this research study?	Yes	No
Have you had an opportunity to gain more information by asking questions and discussing the study?	Yes	No
Do you understand that you are free to withdraw from the study at anytime for any reason and do not have to give a reason?	Yes	No
Do you understand the issue of confidentiality? Do you understand who will have access to your records/information?	Yes	No
Do you understand who will have access to your data?	Yes	No

This study was explained to me by: _____

Date: _____

Student

I agree to take part in this research study for the purpose of evaluating a peer education program

_____

Printed name of Student Signature of Student Date

Witness

I believe that this person signing this form understands clearly what is involved in the study and volunteer's consents to participate

_____

Signature of Investigator Printed Name Date

CONSENT FORM – Peer Educators

Effectiveness of Sexual Health Peer Education Program for Secondary School Students

Principal Investigator:
Rosario G. Cartagena
Public Health Sciences
University of Alberta, Canada

Please answer the following questions by circling yes or no.

Do you understand that you will be participating in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet?	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Have you had an opportunity to gain more information by asking questions and discussing the study?	Yes	No
Do you understand that you are free to withdraw from the study at anytime for any reason and do not have to give a reason?	Yes	No
Do you understand the issue of confidentiality? Do you understand who will have access to your records/information?	Yes	No
Do you understand who will have access to your data?	Yes	No

This study was explained to me by: _____
Date: _____

Student
I agree to take part in this research study for the purpose of evaluating a peer education program

_____

Printed name of Student Signature of Student Date

Witness
I believe that this person signing this form understands clearly what is involved in the study and volunteer's consents to participate

_____

Signature of Investigator Printed Name Date

CONSENT FORM – Key Informants

Effectiveness of Sexual Health Peer Education Program for Secondary School Students

Principal Investigator:
Rosario G. Cartagena
Public Health Sciences
University of Alberta, Canada

Please answer the following questions by circling yes or no.

Do you understand that you will be participating in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet?	Yes	No
Do you understand the benefits and risks involved in you taking part in this research study?	Yes	No
Have you had an opportunity to gain more information by asking questions and discussing the study?	Yes	No
Do you understand that you are free to withdraw from the study at anytime for any reason and do not have to give a reason?	Yes	No
Do you understand the issue of confidentiality? Do you understand who will have access to your records/information?	Yes	No
Do you understand who will have access to your data?	Yes	No

This study was explained to me by: _____

Date: _____

Key Informant

I agree to take part in this research study for the purpose of evaluating a peer education program

_____

Printed name of Key Informant Signature of Key Informant Date

Witness

I believe that this person signing this form understands clearly what is involved in the study and volunteer's consents to participate

_____

Signature of Investigator Printed Name Date